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1973

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The annual fish kill given in the report represents the combined efforts of private indicidual; state fish and game, health, and conservation officers; and water pollution control officials at the state and federal level. Usually, a fish kill is first noticed by a fisherman, camper, or other private citizen, who informs a warden or other state official.

It is essential that a fish kill be reported and investigated immediately in order to determine the source of pollution and the polluting agent. Dead fish may be washed downstream from the source of pollution. The reporting system depends, to a large extent, upon individuals in the field making state officials aware of fish kills.

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FISH KILLS CAUSED BY POLLUTION IN 1973

FOURTEENTH ANNUAL REPORT

OFFICE OF WATER PLANNING
AND STANDARDS

MONITORING AND
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Foreword . . .

The annual fish kill report represents the combined efforts of private individuals; State fish and game, health, and conservation officers; and water pollution control officials at the State and Federal level. Usually, a fish kill is first noticed by a fisherman, camper, or other private citizen, who informs a warden or other State official. In most cases, the State agency then sends trained investigators to identify the cause and size of the kill. Where water pollution is determined or suspected to be the cause, the State submits a report to the Environmental Protection Agency.

It is essential that a fish kill be reported and investigated immediately in order to determine the source of pollution and the polluting agent. Dead fish may be washed downstream from the source of pollution. The polluting agent may be diluted by fast flowing water, making on-site investigation difficult or even impossible. Hot weather conditions decompose fish tissue, also making it difficult to identify a polluting agent. Since the investigator can count or estimate only those fish which lie on or near the surface, the number of fish reported killed is almost always a conservative figure. In some cases, as much as 80 percent of the dead fish cannot be counted due to turbid water, or because the fish have either sunk to the bottom of the water body or have been washed away from the site of the kill.

The reporting system depends, to a large extent, upon individuals in the field making State officials aware of fish kills. It is, therefore, quite likely that the large increases in reports for 1971, 1972, and 1973 over earlier years are a result of increased public awareness of pollution. We hope that this fish kill report contributes to this awareness.

The following is a short summary of significant statistics of fish kills reported in 1973.

- ***All States Reported in 1973***

  For the second time since the inception of the annual pollution-caused fish kill reporting system in 1960, every State in in the Union participated. In six States, participation consisted of a notice that the State had no recorded pollution-caused fish kill incidents in 1973.

- ***The Number of Fish Kill Reports Received in 1973 Showed a Continuing Decrease Compared to the Peak Year 1971***

  Nevertheless, the 749 reports received in 1973 was 18 percent higher than the number of reports received for any year before 1971.

- ***Over 300 Million Fish Reported Killed Since 1960***

  The 37.8 million fish reported killed in 1973 brought the cumulative total of all fish reported killed by water pollution since 1960 to 336.5 million. 1973 was the fourth highest year in number of fish reported killed since the inception of the annual fish kill reporting system. The number of fish reported killed in 1973 showed a 14 percent increase over reported kills in 1972.

- ***Industrial Operations Led all Other Pollution Operations in Fish Kill Reports in 1973***

  The 196 fish kill reports associated with industrial operations in 1973 led all other pollution sources, and were 4 percent more than the 189 industrial incidents reported in 1972. Industrial operations have led all other source operations in every one of the 14 years of the system.

- ***Municipal Operations Killed More Fish Than Any Other Pollution Operation in 1973***

  The 10.4 million fish killed by pollution from municipal operations represent over one-fourth of the 37.8 million fish reported killed in 1973.

- ***The Majority of Fish Kill Reports Indicated That Less Than 10,000 Fish Were Killed Per Incident in 1973***

  While 84 percent of the reports submitted specified the size of the kill as less than 10,000 fish, the total number of fish reported killed in these reports was less than 1 percent of the 37.8 million fish reported killed in all incidents in 1973. However, each report was initiated by a pollution incident.

Basic Statistics . . .

In 1973, 749 reports were submitted (Table 1). Of this total, 703 reports (94 percent of the total) stated the number of

fish killed. This percentage represents the highest ratio of reported incidents specifying the number of fish killed to the total number of reports for any year since the start of the reporting system. In 1972, the figure was 92 percent. The general trend of this ratio over the 1960–1973 period shows an increase from a low of 52 percent in 1960 to the present high of 94 percent in 1973.

From 1961 through 1973, the total estimated number of fish killed ranged from

Table 1 contains historical data for the thirteen years that fish kill reports have been received. The table summarizes the following: The number of states reporting; the number of reported pollution-caused fish kill incidents; the number of reports which specify how many fish died; the reported number of fish killed; the largest single fish kill for each year; the number of reports for each pollution source operation; and a breakdown of fish killed by size of kill. The number of incidents and the numbers of fish killed are probably understated because of incomplete reporting and the difficulties of estimating numbers of dead fish. Also, 20 percent of the reports do not specify how many fish were killed.

TABLE 1—Historical Summary of Pollution-Caused Fish Kills, June 1960–December 1973

	1960[2]	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973
Number of states responding	38	45	37	38	40	44	46	40	42	45	45	46	50	50
Number of reports	289	413	421	442	590	625	532	454	542	594	635	860	760	749
Reports which state number of fish killed	151	265	246	304	470	520	453	364	469	492	563	759	697	703
Total reported number of fish killed	6,035,000	14,910,000	44,001,000	6,937,000	22,914,000	12,140,000	9,614,000	11,291,000	15,815,000	41,166,000	22,290,000	73,670,000	17,717,000	37,814,000
Average size of kill[1]	2,925	6,535	5,710	7,775	5,490	4,310	5,620	6,460	6,015	5,860	6,412	6,154	4,639	5,527
Largest kill reported	5,000,000	5,387,000	3,180,000	2,000,000	7,887,000	3,000,000	1,000,000	6,549,000	4,029,000	26,527,000	3,240,000	5,500,000	2,922,000	10,000,000
Number of reported incidents for each pollution source operation														
Agricultural	79	74	51	84	131	114	88	87	77	117	108	132	113	161
Industrial	103	169	209	199	193	244	195	139	177	199	213	231	189	196
Municipal[3]	24	52	33	60	120	125	87	91	122	84	120	162	167	146
Transportation	0	0	1	17	26	27	27	23	39	32	28	52	56	65
Other	33	58	47	27	17	23	38	35	23	33	28	64	72	56
Unknown	50	60	80	55	103	92	97	79	104	129	138	219	163	125
Total reports	289	413	421	442	590	625	532	454	542	594	635	860	760	749
Number of reports and fish killed by size grouping	No. re- ports / No. fish (millions)	No. re- ports / No. fish (millions)	No. re- ports / No. fish (millions)	No. re- ports / No. fish (millions)	No. re- ports / No. fish (millions)	No. re- ports / No. fish (millions)	No. re- ports / No. fish (millions)	No. re- ports / No. fish (millions)	No. re- ports / No. fish (millions)	No. re- ports / No. fish (millions)	No. re- ports / No. fish (millions)	No. re- ports / No. fish (millions)	No. re- ports / No. fish (millions)	No. re- ports / No. fish (millions)
1,000,000 or more	1 / 5.0	4 / 12.6	2 / 41.0	1 / 2.0	5 / 16.9	3 / 5.4	2 / 2.0	1 / 6.5	3 / 6.1	4 / 35.1	5 / 11.4	28 / 63.0	6 / 8.97	6 / 29.53
100,000 to 1,000,000	3 / 0.53	5 / 0.85	9 / 1.69	12 / 2.68	15 / 3.82	17 / 4.62	23 / 5.48	7 / 2.66	30 / 7.44	9 / 3.15	26 / 7.44	26 / 6.37	27 / 5.43	19 / 4.65
10,000 to 100,000	15 / 0.31	45 / 1.05	38 / 1.01	54 / 1.82	59 / 1.65	63 / 1.42	58 / 1.53	49 / 1.58	64 / 1.79	81 / 2.06	91 / 2.73	124 / 3.33	81 / 2.60	88 / 2.74
1,000 to 10,000	64 / 0.18	107 / 0.34	89 / 0.30	134 / 0.41	167 / 0.49	202 / 0.59	185 / 0.55	143 / 0.46	153 / 0.48	165 / 0.52	198 / 0.62	266 / 0.86	216 / 0.62	251 / 0.81
0 to 1,000	68 / 0.02	104 / 0.03	108 / 0.03	103 / 0.03	224 / 0.07	235 / 0.07	185 / 0.05	164 / 0.05	219 / 0.06	233 / 0.06	243 / 0.07	315 / 0.10	367 / 0.09	339 / 0.09
No size reported for incident	138	148	175	138	120	105	79	80	73	102	72	101	63	46
Average duration of kill in days	2.95	2.64	2.59	3.18	2.44	2.57	2.71	3.34	2.99	3.11	3.25	3.35	3.48	2.72

[1] Derived after excluding reports of 100,000 kills or more as being unrepresentative.
[2] Reporting system in effect for last six months of 1960.
[3] Municipal operations include electric power-generating stations.

a low of 6.9 million in 1963 to a high of 73 million in 1971. The largest number of fish killed in any single incident was 26.5 million in 1969: this incident was caused by pollution in Lake Thonotossassa, near Plant City, Florida.

Excluding the 73.6 million fish reported killed in 1971, the average number of fish killed for the twelve remaining years was 21.4 million. The total of 37.8 million fish reported killed in 1973, the fourth highest year, was much higher than the average.

In 1973, as in previous years, most of the incidents were small—that is, they killed fewer than 10,000 fish apiece. Most fish were killed in very few incidents. For instance, 90 percent of the fish killed were reported in only 25 (3.5 percent) of the 703 reports, including one reported kill accounting for 10 million dead fish (Table 1).

Since the number of dead fish may not be indicative of the severity of the pollution, proper State officials should be notified even when only a small number of dead fish are seen floating on a water body. In cases where the fish kill was due to causes other than man-created pollution, State officials are still interested in determining the cause and should be notified.

In 1973, sources of pollution were identified in 624 of the 749 reports. These kills are listed individually in Table 10. The 125 kills for which the pollution source could not be positively identified are listed in Table 11.

Total Fish Reported Killed

A total of 37.8 million fish were reported killed in 703 separate incidents of water pollution from all sources (Table 2). In the remaining 46 reports from the 749 reports submitted, fish losses were either not stated, or were not expressed in numerical terms.

The 37.8 million fish reported killed in 1973 brought the total number of fish killed (Figure 1) to 333.5 million in 6,305 separate incidents since the first full year of reporting (1961). These 6,305 separate incidents, plus 1,312 reported incidents which did not state the number of fish killed, brought the total number of reported pollution-caused fish kill incidents for the 1961–1973 period to 7,617.

A total of 44 States reported at least one fish kill incident (Table 3). The remaining six States (Arizona, Minnesota, New Mexico, Oklahoma, Rhode Island, and Wyoming) stated they had no recorded incidents of pollution-caused fish kills for 1973. Four States (Alabama, New Jersey, Virginia, and Texas) accounted for 88 percent of the total reports.

Major Fish Kills

In 1973, 25 kills were reported in which the number of dead fish equaled or exceeded 100,000 each, accounting for 34.2 million fish (Table 4). Of these, six massive kills reached or exceeded the million mark, totaling 28.5 million fish. Of these, four kills in Texas accounted for 20.8 million fish, with one kill in a Houston drainage canal reaching the 10 million mark; one kill in Virginia accounted for 7.5 million fish; and one kill in New Jersey accounted for approximately 75 percent (28.5 million) of the 37.8 million pollution-caused fish kills in 1973.

Fish Killed, by Type of Water Body

Reports for 1973 indicate a significant increase compared to 1972 in fish reported killed in rivers and coastal waters and a

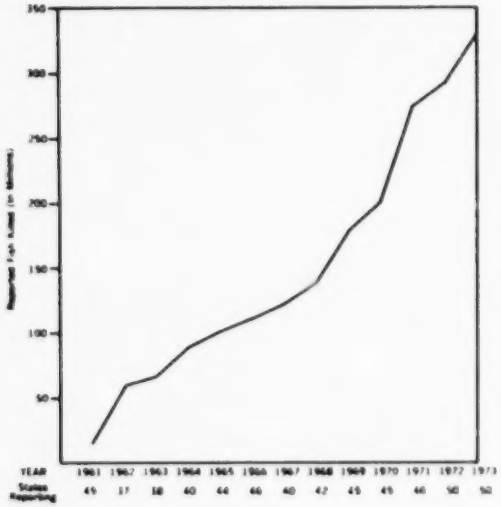
Table 2 summarizes fish kills for 1973 by major and individual pollution sources, and provides further information on fish killed in the game and non-game categories by major pollution sources. Average size of fish kill for each major source is also included. Kills from natural causes are not included.

TABLE 2—Fish Kill Summary by Source of Pollution, 1973

Source of pollution	Total reports	Reports specifying number of fish killed		
		No. of reports	No. of fish	Average kill*
Agricultural:				
Insecticides	91	82	2,040,291	
Fertilizers	18	15	160,361	
Manure-silage drainage	52	49	264,176	
Subtotal	161	146	2,464,828	8,588
Industrial:				
Mining	23	21	92,322	
Food products	19	18	78,389	
Paper products	11	11	7,350	
Chemicals	39	37	448,236	
Petroleum	30	28	528,201	
Metals	15	13	344,900	
Combinations	3	3	15,668	
Other	36	55	278,806	
Subtotal	196	186	1,798,872	4,296
Municipal:				
Sewerage systems	115	107	8,948,889	
Refuse disposal	6	6	7,967	
Water systems	10	9	5,179	
Swimming pool	2	2	300	
Power	13	11	1,423,272	
Subtotal	146	135	10,389,687	5,028
Transportation:				
Rail	5	5	133,079	
Truck	31	31	95,021	
Barge or boat	2	2	12,910	
Pipeline	27	27	324,443	
Subtotal	66	65	565,453	6,991
Other operations:	56	59	348,275	1,966
Unknown:	125	121	22,296,464	4,066
Total	749	703	37,814,499	8,827

*Derived after excluding reports of 100,000 kills or more.

FIGURE 1—Cumulative Reported Fish Killed, 1961 to 1973



OVER 330 MILLION FISH WERE REPORTED KILLED BY POLLUTION . . .

. . . over a 13 year period (Figure 1). This graph summarizes the reported number of fish killed for the 1961 1973 period. The first reporting year, 1960 was excluded since reports were not received for the full year. Many more dead fish probably go unreported due to the difficulties of estimating, and because they were not investigated immediately. This total is also low since 20 percent of the reports are not included because they did not state the number of fish killed.

Table 3 summarizes data from the 44 states which reported one or more pollution-caused fish kill incidents. Of the 749 reports submitted, 703 indicated the number of fish killed. The remaining 46 reports did not specify the number of fish killed. The table also shows the number of reports for incidents that occurred in rivers, lakes, and coastal waters.

TABLE 3—Pollution-Caused Fish Kill Summary by State, 1973

State	Total reports	Reports specifying number of fish killed		Number of reports and water surfaces affected					
				River		Lake		Coastal Waters*	
		Number of reports	Number of fish	Number of reports	Number of miles	Number of reports	Number of acres	Number of reports	Number of miles
Alabama	57	56	1,250,826	39	4,444	18	2,830		
Alaska	1					1	1		
Arkansas	2	2	950	2	9				
California	39	39	123,764	24	95	14	436	1	
Colorado	2	2	650	1	3	1	1		
Connecticut	8	8	13,040	6	4	2	300		
Delaware	1	1	7,500	1	1				
Florida	29	25	35,113	10	19	19	1,481		
Georgia	19	8	5,840	4	34	15	77		
Hawaii	2	2	2,700	2	3				
Idaho	7	7	10,785	6	10	1	360		
Illinois	21	21	395,040	18	87	3	815		
Indiana	12	10	19,434	12	28				
Iowa	4	3	36,150	3	6	1	10		
Kansas	8	7	156,400	5	8	3	64		
Kentucky	6	6	28,788	5	10	1	2		
Louisiana	16	15	432,747	13	80	3	242		
Maine	5	4	2,400	5	7				
Maryland	8	8	257,415	6	288	1	2	1	6
Massachusetts	4	4	405,040	3	18	1	1		
Michigan	4	4	31,248	4	19				
Mississippi	8	8	273,900	7	1,334	1	10		
Missouri	30	26	121,103	17	68	13	45		
Montana	4	4	4,250	4	11				
Nebraska	6	6	70,939	5	24	1	2		
Nevada	2			2	6				
New Hampshire	4	3	350	4	7				
New Jersey	45	44	2,081,035	28	52	17	161		
New York	29	29	54,390	25	70	4	26		
North Carolina	11	11	18,543	7	24	4	104		
North Dakota	1			1	100				
Ohio	131	131	812,617	127		4			
Oregon	13	12	21,721	8	14	5	24		
Pennsylvania	62	61	301,640	61	158	1	1		
South Carolina	4	3	207,298	4	42				
South Dakota	4	4	9,325	2	2	2	2,839		
Tennessee	22	22	267,285	22	54				
Texas	53	50	22,407,801	43	128	5	42	5	4
Utah	1	1	180	1	2				
Vermont	2	2	3,350	2	7				
Virginia	19	19	7,610,585	17	81	2	36		
Washington	32	25	230,965	23	42	8	6	1	
West Virginia	8	8	90,297	8	13				
Wisconsin	3	2	1,100	3	16				
Total	**749**	**703**	**37,814,499**	**590**	**7,428**	**151**	**9,918**	**8**	**10**

* Includes embayments such as Chesapeake, San Francisco, and Galveston Bays.

Table 4 lists the major fish kill incidents occurring in 1973 in which 100,000 or more fish were killed in each incident. Many more large kills may have gone unreported, or missed because they were not investigated immediately, and large kills may have been part of the reports that did not state a number for fish killed.

TABLE 4—Major Kills—100,000 or Over—1973

Lake or stream	Near or in	State	Number of fish	Operation
Dog R	Mobile	Alabama	250,344	Other Operations
Dog R	Mobile	Alabama	250,000	Sewerage System
Santa Fe Lake	Chanute	Kansas	118,000	Rail Transportation
Long Lake	Columbia	Louisiana	341,000	Poisons
Bear Cr	Sparrows Point	Maryland	125,000	Metals
Merrimack R	Newburyport	Massachusetts	350,000	Unknown
Hennesseys Bayou	Vicksburg	Mississippi	250,000	Sewerage System
Barnegat Bay	Harvey Cedars	New Jersey	543,000	Unknown
Oyster Cr	Lacey Twp	New Jersey	112,000	Power
Millstone R	South Brunswick	New Jersey	100,000	Unknown
Oyster Cr	Waretown	New Jersey	1,230,000	Power
Ten Mile Cr	Lucas Co	Ohio	368,651	Petroleum
Catawba R	Rock Hill	South Carolina	192,298	Chemicals
Loosahatchie R	Memphis	Tennessee	133,889	Chemicals
Jones Cr	Brazoria	Texas	200,000	Poisons
Cedar Lakes	Freeport	Texas	110,000	Petroleum
San Bernard R	Freeport	Texas	700,000	Poisons
Gulf of Mexico	Galveston	Texas	3,800,000	Unknown
Gulf of Mexico	Galveston	Texas	1,000,000	Unknown
Drainage Canal	Houston	Texas	10,000,000	Unknown
Taylor Lake	Laporie	Texas	6,000,000	Unknown
Galveston Bay	Seabrook	Texas	100,000	Sewerage System
Galveston Bay	Seabrook	Texas	300,000	Sewerage System
James R	Menchville	Virginia	7,500,000	Sewerage System
Spokane R	Spokane	Washington	101,500	Metals

small increase in fish reported killed in lakes (Table 5). Almost two-thirds (24.9 million) of the total fish reported killed died in rivers, while 21 percent (8.1 million) died in lakes, and 13 percent (4.8 million) died in coastal waters. In 1972, 33 percent (5.8 million) of the total fish reported killed died in lakes. Less than one percent (4 thousand) died in coastal waters, and 67 percent (11.9 million) died in rivers.

Fish Killed by Type of Water

In 1973, the number of fish reported killed in estuary water (water of inlets, bays, or river mouths that are affected by tidal action) accounted for the largest number of fish reported killed of the three types of water (Table 6), followed by fresh water (any inland water upstream of tidal action). An almost insignificant number of fish (61,000) were reported killed in salt water (water beyond the coastline).

In 1973, 85.4 percent (32.3 million) of the total reported fish were killed in estuary water as compared to 39 percent (7.0 million) in 1972. However, 10,800,000 (33 percent) fish were reported killed in only 3 incidents in 1973. Over 14 percent of the fish (5.4 million) were killed in fresh water as compared to 60 percent (10.3 million) in 1972.

Fish killed in estuary water are of national concern since estuaries serve as breeding and nursery grounds for many species of sport and commercial marine fish.

Fish Kills, By Month

As in the past, the greatest number of reports (88 percent) were submitted for the warm weather months (Table 7), from May through September. Warm weather can often combine with lower water levels during these months to compound the effects of pollution. Also, since more people are in, or on, the water during the summer, kills are more apt to be observed and reported.

A total of 703 reports specified the number of fish killed by month. August ranked first in the number of reports (123) and in number of fish. July ranked second (102), followed by September (93), June (76), and October (69).

Fish Kills, By Duration and Severity

Not all reports indicate duration of kill. In 1973, 59 percent (443 reports) indicated duration of kill with an average of 2.70 days (Table 8). In 1972, 56 percent (422 reports) indicated duration of kill with an average of 3.40 days. The two longest pollution incidents in 1973 lasted at least 50 days. These incidents occurred at

Table 5 summarizes reported fish kills by type of water body (river, lake, and coastal waters), and the extent of the area reportedly affected (by miles or acres); **Table 6** summarizes fish kills by type of water (fresh, salt, and estuary); and **Table 7** summarizes fish kills by month. The mileage and acreage figures cannot always be accurately estimated, so care should be exercised in their use.

TABLE 5—Fish Kill Summary by Type of Water Body, 1973

Type of water body	Total reports	Reports specifying number of fish killed		Reports specifying number of fish killed and extent of area affected	
		Number of reports	Number of fish	Miles	Acres
River	590	564	24,884,988	7,428	
Lake	151	132	8,096,011		9,918
Coastal Waters*	8	7	4,833,500	10	
Total	**749**	**703**	**37,814,499**	**7,438**	**9,918**

* Includes embayments such as Chesapeake, San Francisco, and Galveston Bays.

TABLE 6—Fish Kill Summary by Type of Water, 1973

Type of water	Total reports	Reports specifying number of fish killed	
		Number of reports	Number of fish
Fresh*	690	649	5,447,129
Salt**	9	7	61,500
Estuary***	50	47	32,305,870
Total	749	703	37,814,499

* Fresh water includes any inland water upstream of tidal action.

** Salt water means water beyond the coastline.

*** Estuary means the water of inlets, bays, or river mouths that are affected by tidal action.

TABLE 7—Fish Kill Summary by Month, 1973

Month	Total reports	Reports specifying number of fish killed	
		Number of reports	Number of fish
January	26	22	1,866,525
February	31	27	179,565
March	38	38	1,146,554
April	51	49	100,270
May	66	63	8,025,802
June	79	76	421,135
July	111	102	11,278,822
August	132	123	8,546,878
September	101	93	4,951,159
October	71	69	409,801
November	22	21	833,020
December	21	20	54,968
Total	**749**	**703**	**37,814,499**

Ashton Reservoir, Idaho (50 days), and the Kennebec River at Augusta, Maine (60 days). The decrease in duration in 1973 reverses an increasing trend started in 1965, with the exception of 1967.

The severity of a fish kill is reported as "complete", "heavy", "moderate", or "light" (Table 8). Ninety three "complete" kills were reported, averaging 6,820 fish per report. "Heavy" kills averaging 9,540 fish were reported on 207 occasions. "Moderate" kills were reported on 144 occasions, averaging 4,922 fish per kill. "Light" kills were reported on 160 occasions, averaging 837 fish per kill. Table 8 also indicates the average duration of fish kills by severity of kill, as well as the number and percentage of fish kill reports given jointly for severity of kill and major source of pollution.

Pollution-Causing Operations . . .

In 1973, pollution from industrial operations ranked first with 196 reports (Figure 2). In 1972, pollution from industrial operations also ranked first, with 189 reports. This comparison indicates a small increase of reported incidents (7 reports), or less than a 4 percent change between the two reporting years. Industrial operations has consistently led all other major pollution source operations in every one of the 14 years of the reporting system.

In 1973, pollution from agricultural operations ranked second with 161 reports (Figure 2). In 1972, pollution from municipal

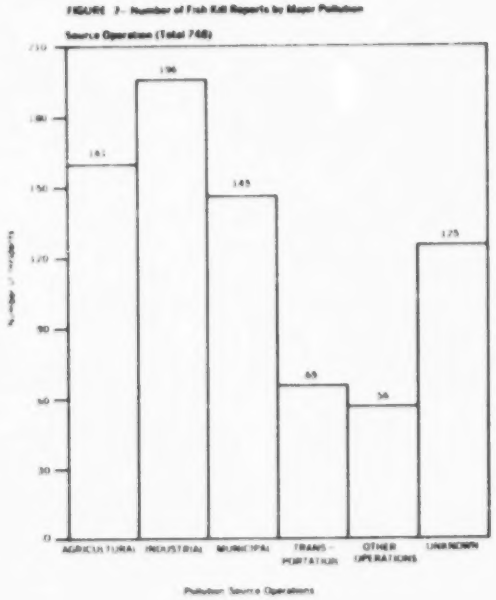
operations ranked second in the number of reports (167). Municipal operations include electric power generating stations.

In 1973, pollution from municipal operations ranked third with 145 reports (Figure 2). In 1972, pollution from agricultural operations ranked third, with 113 reports.

In 1973, pollution from transportation operations ranked fourth with 65 reports (Figure 2). In 1972, pollution from "other operations" ranked fourth in the number of reports (72).

In 1973, pollution from other operations ranked fifth, and last, with 56 reports (Figure 2). In 1972, pollution from transportation operations ranked fifth with 56 reports.

The term "unknown operations" is applied to situations where a fish kill cannot be linked to a specific pollutant or pollution source, but an investigator is reasonably confident that the fish did not die from natural causes. In many cases an



OF THE FIVE MAJOR SOURCES OF POLLUTION, INDUSTRIAL OPERATIONS LED IN THE NUMBER OF REPORTED INCIDENTS IN 1973 . . .

. . . with agricultural operations in second place. Figure 2 shows the number of reported fish kill incidents for each pollution source operation. The unknown category (unidentified pollution sources) has been added to show the distribution of total reported incidents. Kills from natural causes were not included.

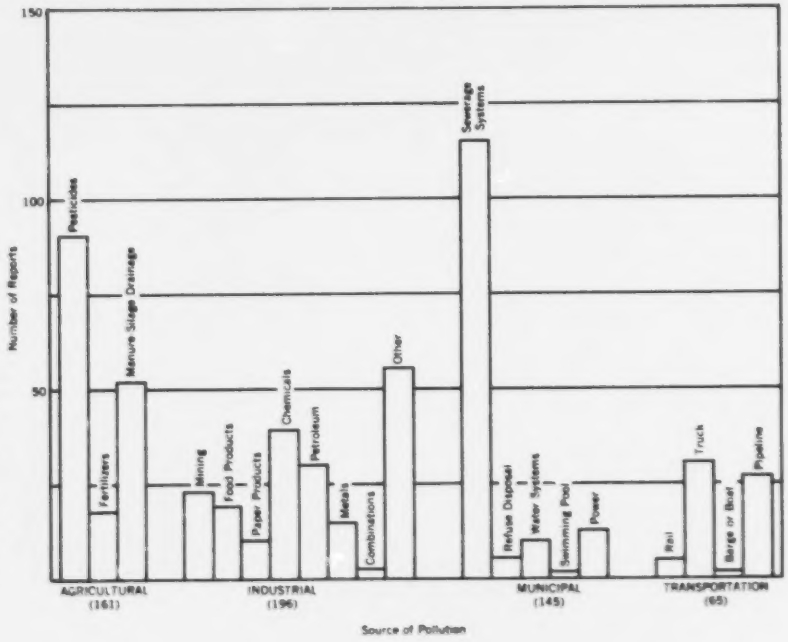
Table 8 summarizes the reported duration and estimated severity of fish kills, their average size, and the number and percent of reports for the different pollution sources. These figures cannot always be accurately estimated, so care should be exercised in their use.

TABLE 8—Fish Kill Summary by Duration and Severity of Kill, 1973

Severity of kill	Number of reports	Average kill**	Duration of Kill		Agricultural		Industrial		Municipal		Transportation		Other Operations		Unknown	
			No.	Average (days)*	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent
Complete kill	59	6,820	77	2.5	29	18	26	13	12	8	15	23	8	14	5	4
Heavy kill	207	9,540	164	2.8	60	37	49	25	39	27	15	23	15	27	29	23
Moderate kill	144	4,922	98	1.8	27	17	42	22	30	20	11	17	12	22	22	18
Light kill	162	837	96	3.7	18	11	42	21	29	20	11	17	18	32	44	35
Not stated	141	5,856	8	2.3	27	17	37	19	36	25	13	20	3	5	25	20
Total	749	5,527	443	2.7	161	100	196	100	146	100	65	100	56	100	125	100

* Includes all fish killed as reported plus an allowance computed for reports which did not indicate the number of fish that died.
** Derived after excluding 25 reports of 100,000 kills or more.

FIGURE 3—Number of Fish Kill Reports by Detailed Source of Pollution



SEWERAGE SYSTEMS UNDER MUNICIPAL OPERATIONS . . .

. . . led all other individual sources of pollution in the number of reported fish kill incidents. Figure 3 shows the number of reported incidents for each individual pollution source.

investigator is not notified that a fish kill occurred until it is too late to identify a specific pollution agent due to the deterioration of fish.

In 1973, pollution from unknown operations was responsible for 125 reports (Figure 2). The source of pollution was unidentified for approximately 17 percent of all reports received. In 1972, pollution from unknown operations was responsible for 163 reports; the source of pollution was unidentifiable in approximately 21 percent of all reports received.

Figure 3 summarizes the number of fish kill reports by detailed source of pollution within each of the preceding major pollution source operations.

Figure 4 summarizes the number of fish reported killed by each major pollution source operation. Municipal operations ranked first (10.4 million), followed by agricultural operations (2.5 million), industrial operations (1.8 million), and transportation operations (0.6 million). Figure 5 summarizes the number of fish reported killed by each detailed pollution source operation.

OF THE FIVE MAJOR SOURCES OF POLLUTION, MUNICIPAL OPERATIONS LED IN THE NUMBER OF FISH REPORTED KILLED . . .

. . . with agricultural operations in second place. Figure 4 shows the number of fish reported killed by each pollution source operation. Due to the large number of fish kill incidents by unidentifiable pollution sources, the unknown category has been added to this graph. In 1973, the number of fish killed by unknown sources was over twice the number killed by the leading identifiable pollution source.

FIGURE 4—Reported Number of Fish Killed by Major Pollution Source Operation

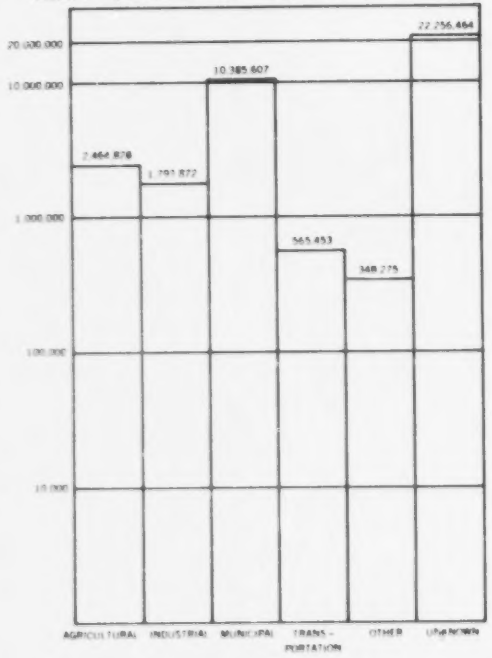
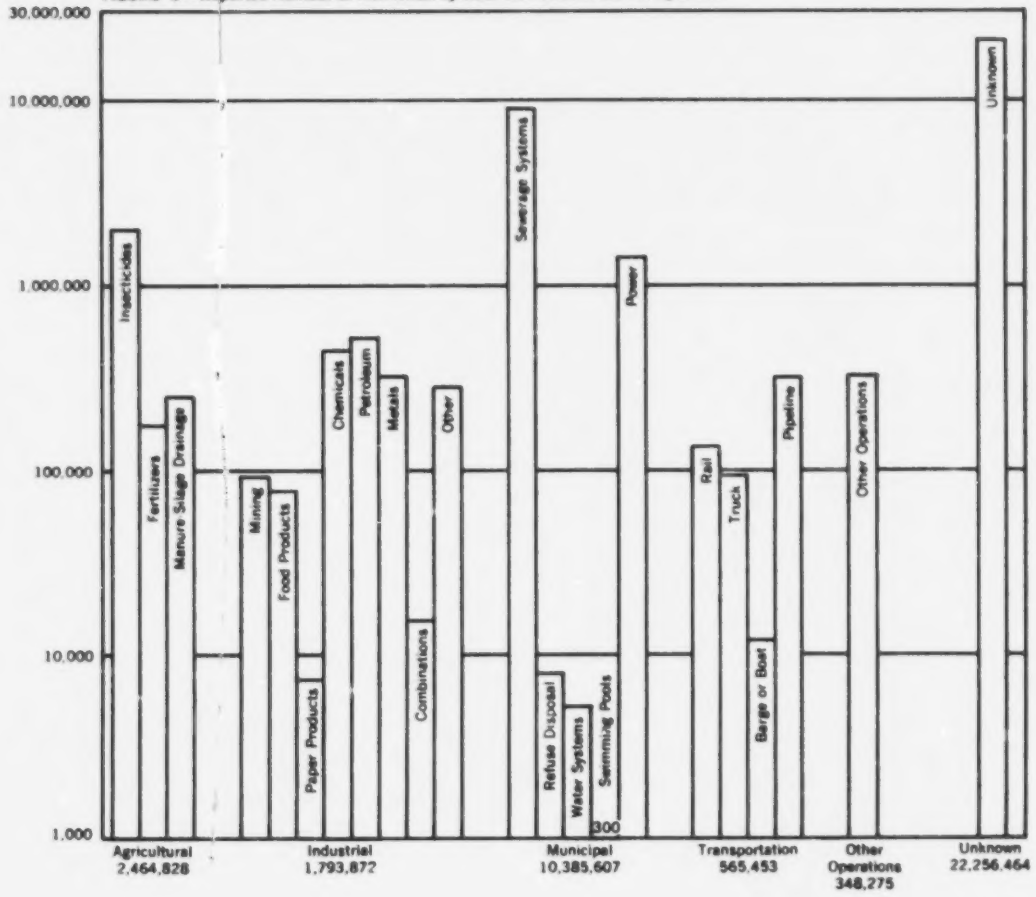


FIGURE 5—Reported Number of Fish Killed by Detailed Pollution Source Operation



OF THE TWENTY-ONE DETAILED SOURCES OF POLLUTION . . .

. . . sewerage systems operations was the leading killer of fish in 1973 according to State reports. Figure 5 shows how many fish were killed by each kind of pollution source.

Regional Data . . .

Table 9 summarizes the reported number of pollution-caused fish kill incidents and pollution source operations within each Environmental Protection Agency Region. This table permits a comparison of the frequency of reported incidents in different sections of the U.S. due to different pollution sources. Figures 6 through 15 and bar charts for each Environmental Protection Agency Region. These charts indicate the percent of reported incidents within a given region for individual sources of pollution, and also list the States within each respective region. Figures in the charts are derived from Table 9.

Agricultural Operations

In 1973, pesticides in Region IV (34 reports) was the most frequently reported individual source of pollution under agricultural operations for any of the ten regions. In 1972, manure-silage drainage in Region VII (18 reports) was reported most frequently for all regions.

In 1973, pesticides were responsible for 6 reported incidents in Region I, 24 reported incidents in Region VI, and 7 reported incidents in Region IX, making it also the leading agricultural source of reported fish kill incidents for all regions combined.

Table 9 summarizes the number of reported pollution-caused fish kill incidents by individual source of pollution for each EPA region. Region VIII reported the smallest number of fish kill incidents (12 reports) while Region V (171 reports) led in the number of reported incidents.

In 1972, pesticides were also the leading agricultural source of reported incidents for all regions combined. Manure-silage drainage was the second most frequently reported pollution source (52 reports). Almost half of these reports (22) came from Region V.

In 1973, fertilizers were reported as the pollution source in 18 fish kill incidents from Regions II, IV, V, VII, IX, and X, but represented only 11 percent of the agricultural operations total. In 1972, fertilizers were the pollution source reported in 10 fish kill incidents from Regions III, V, VII, and VIII, but represented only 8.8 percent of the total for agricultural operations.

The total number of reported pollution-caused fish kill incidents from agricultural operations increased from 113 reported incidents in 1972 to 161 in 1973, a difference of 48 reported incidents. Pesticides, with an increase of 31 reports, were responsible for 65 percent of the increase.

Municipal Operations

In 1973, sewerage systems in all regions was the most frequently reported individual source of pollution under municipal operations, totalling 115 reported fish kill incidents. Regions IV, V, VI, and VIII accounted for 89 reported incidents, or 61 percent of all pollution-caused fish kill incidents resulting from municipal operations.

TABLE 9—Number of Fish Kill Reports by Source of Pollution Within EPA Regions, 1973

Source of pollution:	EPA Regions										
	I	II	III	IV	V	VI	VII	VIII	IX	X	Total
Agricultural:											
Pesticides	6	3	2	34	4	24	4	3	7	4	91
Fertilizers		1		3	5		2		1	6	18
Manure-silage drainage	1	2	4	8	22	5	5		1	4	52
Subtotal	7	6	6	45	31	29	11	3	9	14	161
Industrial:											
Mining		1	5	2	6		3		5	1	23
Food products		6	1	4	4	1	1		1	1	19
Paper products			2	4	1	1				3	11
Chemicals	2	5	10	7	5	4	3		1	2	39
Petroleum		1	11	4	6	6	1			1	30
Metals		2	5		4		2			2	15
Combinations	1		1		1						3
Other	2	3	17	8	15			1	3	7	56
Subtotal	5	18	52	29	47	12	10	1	10	17	196
Municipal:											
Sewerage systems	1	6	9	29	36	11	12	3	6	2	115
Refuse disposal		3			2	1					6
Water systems		2	2	2					4		10
Swimming pool		1						1			2
Power		5	1	1	4		1			1	13
Subtotal	1	17	12	32	42	12	13	4	10	3	146
Transportation:											
Rail		1		1	2		1				5
Truck		8	7	3	4	1	3		1	4	31
Barge or boat						1			1		2
Pipeline			9	1	11	4	2				27
Subtotal	0	9	16	5	17	6	6	0	2	4	65
Other Operations:	5	7	8	16	9	3	2	1	3	6	56
Unknown:	5	17	4	29	34	9	6	3	9	9	125
Total:	23	74	98	156	171	71	48	12	43	53	749

REGION I
Connecticut
Maine
Massachusetts
New Hampshire
Rhode Island
Vermont

REGION II
New Jersey
New York

REGION III
Delaware
District of Columbia
Maryland
Pennsylvania
Virginia
West Virginia

REGION IV
Alabama
Florida
Georgia
Kentucky
Mississippi
North Carolina
South Carolina
Tennessee

REGION V
Illinois
Indiana
Michigan
Minnesota
Ohio
Wisconsin

REGION VI
Arkansas
Louisiana
New Mexico
Oklahoma
Texas

REGION VII
Iowa
Kansas
Missouri
Nebraska

REGION VIII
Colorado
Montana
North Dakota
South Dakota
Utah
Wyoming

REGION IX
Arizona
California
Hawaii
Nevada

REGION X
Alaska
Idaho
Oregon
Washington

In 1972, sewerage systems was also the most frequently reported pollution source, totalling 131 reported pollution-caused fish kill incidents. Regions III, IV, V and VI accounted for 99 reported incidents, or 76 percent of all reported incidents.

In 1973, the total number of reported pollution-caused fish kill incidents for sewerage systems was 115 incidents, while the 1972 total was 131 incidents, a 12 percent decrease. Significant changes occurred in Regions II, III, and VI, where the number of reported incidents decreased from 48 incidents in 1972 to 26 incidents in 1973, reflecting a 54 percent change.

Industrial Operations

In 1973, industrial operations accounted for more pollution-caused fish kill incidents (196) than any other pollution source operation, an increase of 7 reported incidents from the 189 incidents reported in 1972, less than a 4 percent change.

In 1973, chemicals and petroleum in Region III (10 and 11 reports respectively) were the most frequently reported individual sources of pollution under industrial operations for any given region, and chemicals (39 reports) was the most frequently reported individual source of pollution for all regions combined.

In 1972, petroleum in Region III (14 reports) was the most frequently reported individual source of pollution under industrial operations for any given region.

Transportation Operations

In 1973, transportation operations (65 reports for all regions) had the smallest number of reported fish kill incidents of any major pollution source operation. The 11 reported incidents for pipeline from Region V represented the largest number of reports for any single source of pollution within the transportation operations category, or 17 percent of the total reports. Truck operations, an individual source of pollution, accounted for 48 percent of the total incidents for all regions under transportation operations.

In 1972, transportation operations (56 reports for all regions) also had the smallest number of reported fish kill incidents of any major pollution source operations. Truck operations, under this category, accounted for 28 reported incidents, or 50 percent of the total.

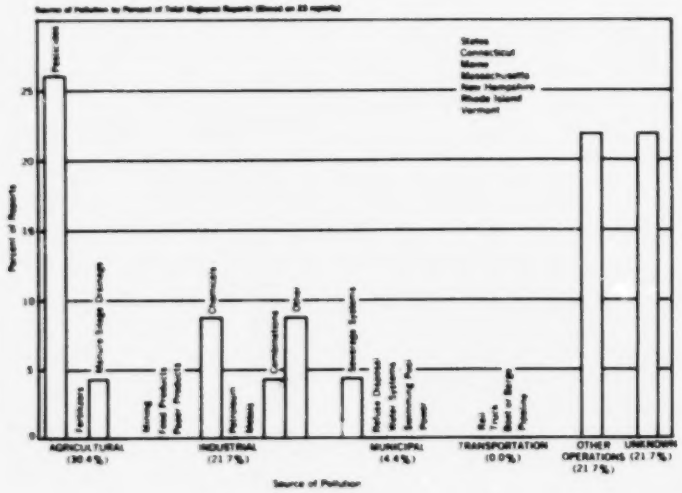
Other Operations

Other operations are a general category for those identifiable sources of pollution which do not fall under the other four categories.

In 1973, Region IV, with 16 reported fish kill incidents accounted for 29 percent of the total 56 reported incidents caused by pollution from other operations. In 1972, 16 fish kill incidents were reported under Region III: these 16 incidents represented 22 percent of the total 72 fish kill incidents reported under the other operations category.

The decrease in reported incidents (16 reports) for other operations from 1972 to 1973 is highlighted by the 77 percent drop in Region VI (from 13 to 3 reports), and the 64 percent drop in Region V (from 14 to 5 reports). Region IV, however, showed a 300 percent increase (4 to 16 reports) from 1972 to 1973.

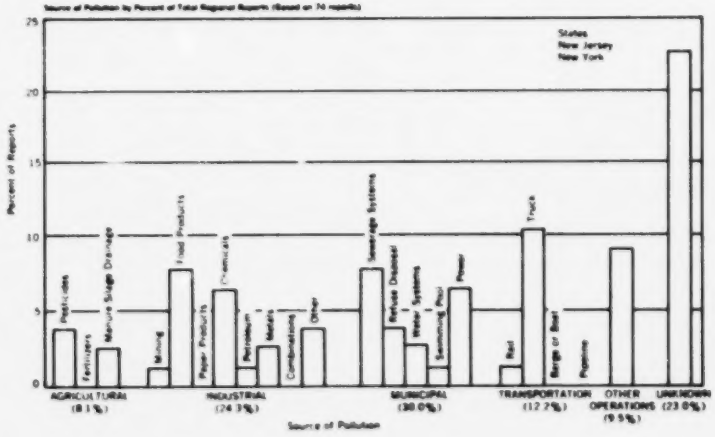
FIGURE 6—Pollution-Caused Fish Kills in Region I



IN 1973, "PESTICIDES" LED IN REGION I . . .

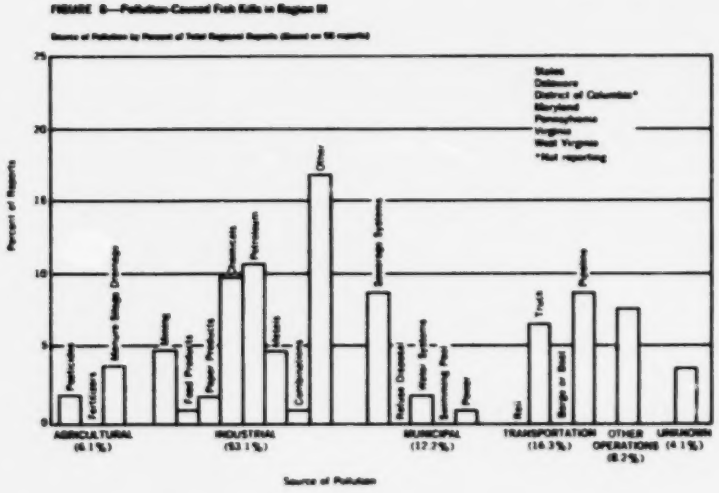
. . . among individual sources of pollution (Figure 6) with 26 percent of the total number of reported fish kill incidents in the region. These percentages are based on 23 fish kill reports in Region I.

FIGURE 7—Pollution Caused Fish Kills in Region II



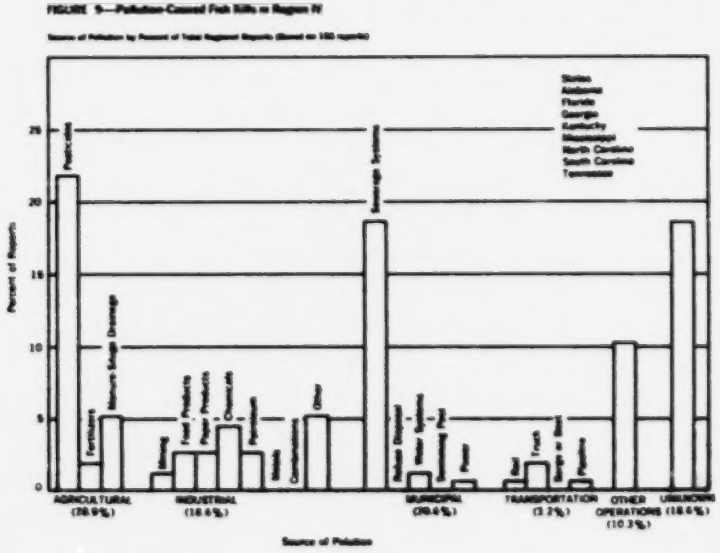
IN 1973, "TRUCK" LED IN REGION II . . .

. . . among individual sources of pollution (Figure 7) with 10.8 percent of the total number of reported fish kill incidents in this region, while pollutants due to "refuse disposal" and "food products" operations tied for second place with 8 percent each of the reported total. These percentages are based on 74 fish kill reports in Region II.



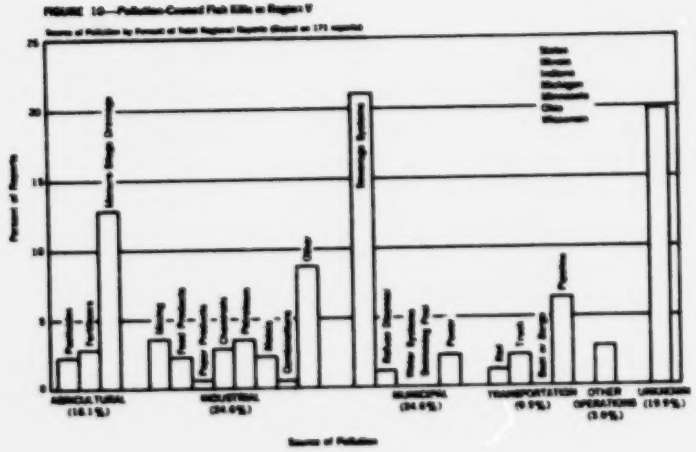
IN 1973, "PETROLEUM" LED IN REGION III . . .

. . . among individual sources of pollution (Figure 8) with 11.2 percent of the total number of reported fish kill incidents in this region, while "chemicals" was second with 10 percent of the reported total. These percentages are based on 98 fish kill reports in Region III.

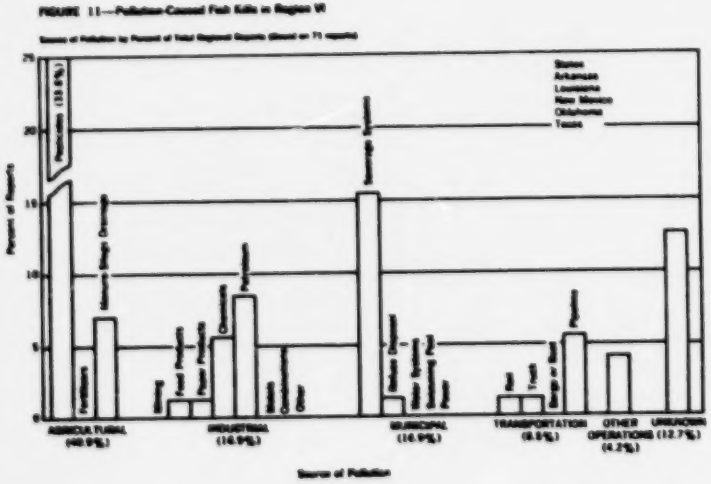


IN 1973, "PESTICIDES" LED IN REGION IV . . .

. . . among individual sources of pollution (Figure 9) with 21.8 percent of the total number of reported fish kill incidents in this region, while "sewerage systems" was second with 18.5 percent of the reported total. These percentages are based on 156 reports in Region IV.

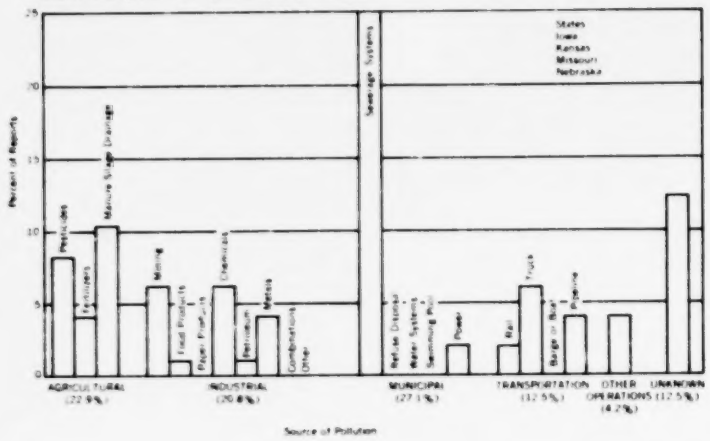


IN 1973, "SEWERAGE SYSTEMS" LED IN REGION V . . .
. . . among individual sources of pollution (Figure 10) with 21 percent of the total number of reported fish kill incidents in this region, while "manure-silage drainage" was second with 12.9 percent of the reported total. These percentages are based on 171 reports in Region V.



IN 1973, "PESTICIDES" LED IN REGION VI . . .
. . . among individual sources of pollution (Figure 11) with 33.8 percent of the total number of reported fish kill incidents in this region, while "sewerage systems" was second with 15.5 percent of the reported total. These percentages are based on 71 reports in Region VI.

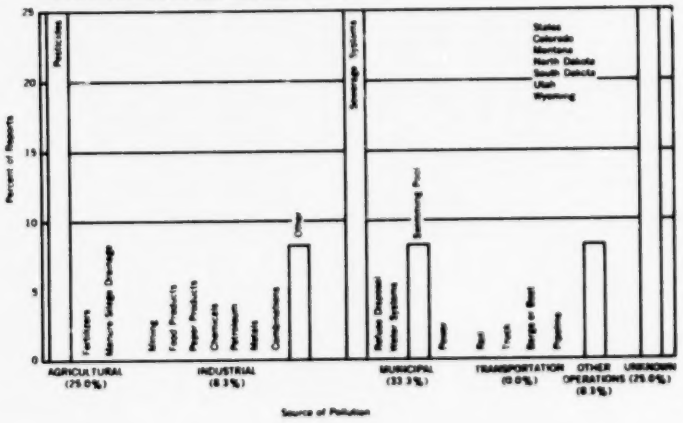
FIGURE 12—Pollution Caused Fish Kills in Region VII



IN 1973, "SEWERAGE SYSTEMS" LED IN REGION VII . . .

. . . among individual sources of pollution (Figure 12) with 25 percent of the total number of reported fish kill incidents in this region, while "manure-silage drainage" was second with 10.4 percent of the reported total. These percentages are based on 48 reports in Region VII.

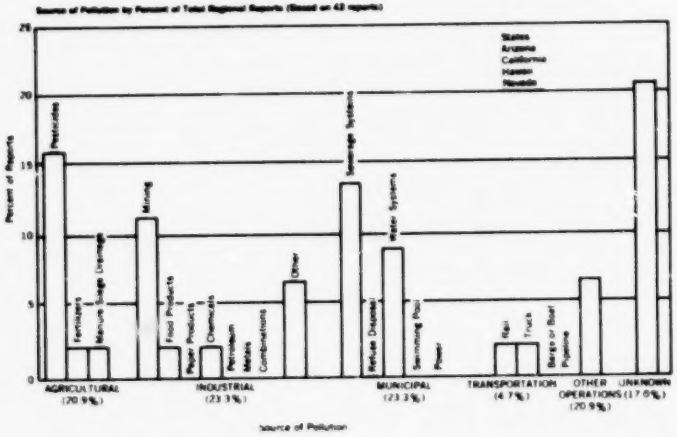
FIGURE 13—Pollution Caused Fish Kills in Region VIII



IN 1973, "PESTICIDES" AND "SEWERAGE SYSTEMS" TIED IN REGION VIII . . .

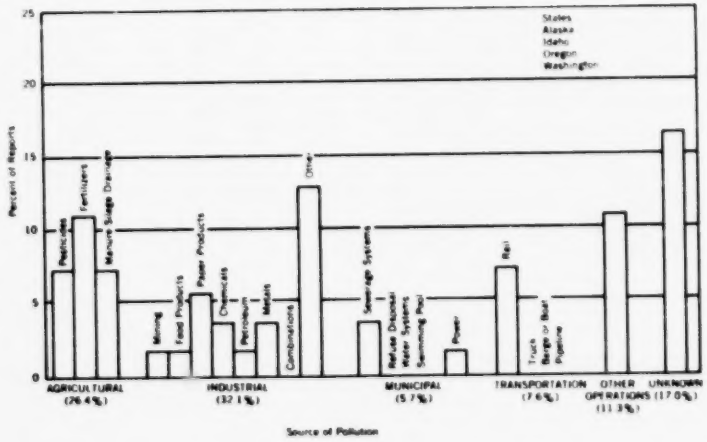
. . . among individual sources of pollution (Figure 13) with 25 percent each of the total number of reported fish kill incidents in the region. These percentages are based on 12 reports in Region VIII.

FIGURE 14—Pollution-Caused Fish Kills in Region IX



IN 1973, "PESTICIDES" LED IN REGION IX . . .
. . . among individual sources of pollution (Figure 14) with 16.3 percent of the total number of reported fish kill incidents in this region, while "sewerage systems" was second with 14.0 percent of the reported total. These percentages are based on 43 reports in Region IX.

FIGURE 15—Pollution Caused Fish Kills in Region X



IN 1973, "FERTILIZERS" LED IN REGION X . . .
. . . among individual sources of pollution (Figure 15) with 11.3 percent of the total number of reported fish kill incidents in the region, while "pesticides," "manure-silage drainage," and "truck" tied for second place with 7.6 percent each of the reported total. These percentages are based on 53 reports in Region X.

Table 10 lists the 624 reported fish kills for which the pollution-source was specified. Tabular heading information for each fish kill includes state, body of water, city or town, date of kill, cause, type of fish killed (game or non-game), percent of fish having commercial value, estimated number of fish killed, severity, extent of damage, and duration.

TABLE 10—Report of Fish Kills, 1973—Cause Identified

Body of water	City or town	Date	Cause[1] see code page 25	Type of fish killed		Percent kill with commercial value	Estimated fish killed	Severity[2] see code page 25	Estimated miles or acres affected[3] page 25	Duration Days	Duration Hrs.
				Percent game	Percent non-game						
ALABAMA											
Short Creek	Birmingport	7 16 73	21	60	40		2,010	2	2M	3	
Neely Hery Resvr	Calhoun	9 14 73	50								
Weiss Reservoir	Centre	8 24 73	11	7	93		82,243	2	200A	5	
Lt Nose-Weiss Re	Centre	8 27 73	11	7	93		43,573	2	200A	4	
Weiss Reservoir	Centre	8 13 73	11	51	49		49,264	2	41A	2	
Weiss Reservoir	Centre	8 09 73	11	33	67		29,034	2	1160A	2	
Mud Cr	Cherokee	8 08 73	11	30	70		29,034	3	1160A		
Bay Springs	Cherokee	8 13 73	11	60	40	10	49,264	2	41A		
Lt Nose Embaymnt	Cherokee	8 24 73	11	7	93	3	82,243	2	5M		
Unnamed Stream	Chickasaw	4 18 73	28	99	1		634	4	1M		
Unnamed Stream	Chickasaw	4 18 73	44	99	1		634	3	1M		
Pickwck Reservr	Colbert Co	8 13 73	11	24	76	10	7,570	3			
Lt Wills Cr	Collinsville	7 04 73	13	5	95		15,282	2	2M	3	
Spring Cr	Courtland	9 28 73	11		100		120	4	1M	1	
Wheeler Reservr	Courtland	9 13 73	11	13	87	26	3,397	2	500A	3	
Lt Wills Cr	Dekalb Co	7 06 73	28	50	50		15,282	3			
Alabama R	Elmore	10 16 73	50				15,622	3			
Blk Warrior Slough	Greensboro	8 24 73	11	66	44	16	7,474	2	20A	2	
Black Warrior R	Greensboro	8 20 73	11	70	30	10	16,968	2	35A	3	
Big Springs Cr	Guntersville	9 06 73	50	64	36	18	2,142	2	2973M		
Wheeler Reservr	Limestone Co	8 02 73	11				54,799	2			
Wheeler Reservr	Limestone Co	7 28 73	11	60	40		13,364	3			
Thiobol Pond	Madison	8 15 73	50	23	77	21	7,570	3			
Big Springs Cr	Marshall	9 06 73	11	72	28	15	2,142	3	1M		
Three Mile Cr	Mobile	8 08 73	50	5	95	50	268	4			
Lafitte Bay	Mobile	9 20 73	50		100		30	4	1M		
Dog R	Mobile	9 13 73	50		100	100	250,344	2	1M		
Dog R	Mobile	9 12 73	31	1	99	99	250,000	3	1M		5
Dog R	Mobile	9 03 73	31		100	100	63,000	3	1M		
Shell Bayou	Mobile	5 04 73	23	73	27	27	15	4	1M	1	
Mobile R	Mobile	8 14 73	23	1	99	25	268	4	1M		12
Catoma Cr	Montgomery	7 24 73	11				177	4			
Catoma Cr	Montgomery	7 23 73	11	98	2		209	2	1M	1	
Wheeler Nat Wlr	Mooresville	7 28 73	11	81	19	16	13,364		200A	3	
Swan Cr	Mooresville	7 26 73	11	24	76	15	54,799	1	200A	7	
Baker Cr Embaymt	Morgan Co	1 01 73	4	5	95		244	4	1M		
Norton Cr	Saraland	10 03 73	31	100			2,423	2	1M		6
Blk Warrior R	Tuscaloosa	10 30 73	23	15	85	42	198	4	4M	4	
Black Warrior R	Tuscaloosa	3 09 73	25	32	68	100	800	4	1M		
Locust Fork	Walker Co	3 10 73	25	37	63	2	800	4	3A		
Locust Fk-Blk W	West Jefferson	8 14 73	35	44	56		67,938	2	7M	3	
ALASKA											
Sitka Sound	Sitka	1 16 73	28					4	1M	2	
ARKANSAS											
Canal-Grand Lake	Eudora	7 28 73	11	20	80	5	750	4	1M	1	
Canal 43	McGehee	10 07 73	11	25	75	10	200	4	8M	1	
CALIFORNIA											
Anderson Cr	Anderson	3 15 73	28	7	93		700	2	3M		8
Private Pond	Auburn	6 10 73	28	100			550	1	2A		24
Calif-Best Ca	Brawley	9 13 73	11	20	80		12,755	2	1M		4
Camanche Res	Campo Seco	4 09 73	21	83	17		6	4		4	
Mokelumne R	Clements	2 16 73	21	100			900	3	1M	1	
Mokelumne R	Clements	1 20 73	21	100			32,823	2	2A	17	
Dry Cr Ca	Fresno	10 12 73	22	5	95		19,000	1	10M	3	
Wilson Cr	Glenn Co	7 17 73	11		100		300	2			
Lake Hennessey	Napa	4 12 73	33	30	70		2,000	2	400A	6	
Sunbeam Lake	Imperial Co	3 16 73	11	100			6,500	2		2	
Mud Slough	Los Banos	12 19 73	31		100		500	2	2M	1	
Mud Slough	Los Banos	12 19 73	31		100		500	2	2M	1	
Bahia-Bel Marin	Novato	5 18 73	31	100			300	2			
Napa R	Oakville	7 26 73	11	2	98		1,000	2	1M	1	
Estes West Drain	Palo Verde	6 15 73	11		100		5,000	2	1M		
Estes West Drain	Palo Verde	6 15 73	11		100		5,000	1		1	
Pinole Cr	Pinole	4 17 73	42	20	80		350	2	1M	1	
Oregon Gulch	Redding	3 02 73	33	25	75		130	2	1M	1	
Little Squaw Cr	Redding	5 11 73	21	100			100	3			
Dry Cr	Roseville	8 30 73	28		100		250	3	1M		24
Encina High Pond	Sacramento	12 20 73	33	75	25		75	1	1A	1	
Nature Pond	Sacramento	12 21 73	33		100		150	1	1A		
Walthal Slough	San Joaquin Co	12 03 73	13		100		13,000	2	3M		
Walthal Slough	San Joaquin Co	2 02 73	50	65	35		1,400	2	20A	3	
San Rafael Canal	San Rafael	9 17 73	50	100			50	3			
Stockton Ft Slip	Stockton	7 21 73	43	95	5		410	2	5A	2	
Volta Westeway	Volta	5 11 73	31	99	1		1,500	2	3M	2	
Volta Westeway	Volta	5 11 73	31	99	1		1,500	2	3M	2	
Broaddus Cr	Willits	5 07 73	24	70	30		5,000	2			
Bard Drain Ca	Winterhaven	11 06 73	11	100			2,000	2		2	
COLORADO											
Pond	Boulder	2 28 73	28	20	80		200	1	1A	1	
Surface Cr	Cedaredge Hatch	4 22 73	11	56	44		450	1	3M		

CONNECTICUT												
W Br Bantam R	Norfolk	8 28 73	50	1	99			300	1	1M		3
Shenipsit La	Rockville	8 23 73	50	100				3,000	2	300A		
No Name	Shelton	7 23 73	50	5	95			20	1	1M		3
Stratton Brook	Simsbury	6 21 73	11	100				20	4			
E Br Naugatuck R	Torrington	8 13 73	28		100			550	1	1M		2
Steele Brook	Watertown	8 08 73	50		100			50	1			
DELAWARE												
Delaware R	Delaware City	9 27 73	25	80	20			7,980	4	1M	4	
FLORIDA												
El Rio Ca	Boca Raton	9 22 73	31	100				100	3	1M	2	
Horseshoe La	Cocoa	7 13 73	33						1	3A	4	
Old Tank Lake	Dade City	1 04 73	27	56	44	1		640	3	1A	2	
Lake Marie	Debary	7 11 73	28					2,000	3			
L-28 Intrcptr Ca	Ft Lauderdale	10 01 73	28	60	40			1,000	2	1M	8	
L-28 Inter Canal	Ft Lauderdale	10 08 73	50	85	15			1,000	3	1M	2	
Georges Pd	Gainsville	9 12 73	12	100				4,000	1	30A	1	
Clarkes Cr	Green Cove Sprs	5 14 73	21	100		10		175	3	5M	2	
Houghs Pond	Gretna	1 01 73	41	75	25			3,156	3	10A	3	
Lake Kissimmee	Lake Wales	6 01 73	31	11	89			1,000	4	200A	30	
Crystal La	Lake Wales	9 12 73	31	100				1,600	3	8A		8
Taylor Cr	Okeechobee	6 25 73	50	25	75			1,500	3	8M	3	
Lake Tyler	Orlando	6 – 73	28	95	5			200	4	35A	28	
Lt La Fairview	Orlando	7 23 73	11	99	1			200	4	1M	5	
New R	Raiford	4 24 73	13	75	25				3	2M	3	
Lake Tarpon	Tarpon Springs	9 15 73	31	80	20			3,000	4	1A	3	
Upland Ca	Tavernier	12 03 73	31		100				3		3	
La Thonotosassa	Thonotosassa	6 06 73	31	30	70			5,000	4	819A	30	
Reedy Cr	W Disney World	4 25 73	33	17	83			424	3		2	
La Shipp & Lulu	Winter Haven	5 11 73	31	74	26			113	4	350A	30	
Lake Hartridge	Winter Haven	9 13 75	11	99	1			1,210	3	1A	2	
GEORGIA												
Bob & John Hayes	Albany	8 06 73	11						1	4A	7	
Casey Goodwin Pd	Americus	1 29 73	12							10A		
Joe Pates Pond	Bluffton	8 10 73	11						4	4A	3	
C Willis Pond	Butler	7 06 73	11	100				500	4	2A	5	
Mitchell Suber	Coolidge	9 15 73	11						3	15A	4	
E R Rays Pond	Cordele	7 06 73	11						1	2A	7	
Pope Williams	Crisp Co	7 26 73	11							2A		
M Mclendons Pd	Edison	7 27 73	11	30	70				1	3A	5	
Marian Williams	Ellaville	9 17 73	13						3	3A	4	
Marian Williams	Ellaville	8 18 73	13						3	3A	3	
La Sidney Lanier	Gainesville	3 10 73	31					350	3	10A	1	
Rev D Halstead	Grady Co	6 01 73	11					50		3A		
L D Hand Pond	Pelham	5 01 73	11					900		10A		
W V Hudsons Pond	Pinehurst	8 28 73	11					3,500	2	1A	3	
Bay Gall Cr	Portal	8 21 73	42	75	25			197	2	1M		
Henry Sheely Pd	Shellman	2 22 73	12							5A		
Oquina Cr	Thomasville	8 31 73	22					300	2	1M	1	
HAWAII												
Kumumau Canal	Hickam AFB	12 13 73	50	29	71	71		700	3	2M	1	
Waikomo Stream	Koloa	3 02 73	12	90	10			2,000	1	1M		
IDAHO												
Ashton Reservoir	Ashton	2 04 73	42	100				10	4	360A	50	
Conant Cr	Ashton	8 07 73	12	71	29			2,447	2	2M		8
Benewah Cr	Benewah	8 11 73	28	2	98			4,000	1	1M		
Loggers Cr	Boise	7 25 73	11	2	98			1,000	3	1M		
Mason Cr	Caldwell	3 14 73	12		100			1,000	1	2M		
Lt Canyon Cr	Glenns Ferry	3 29 73	12		100			2,220	1	3M		
Big Cr	Kellogg	7 18 73	21	63	37			108	1	1M	1	
ILLINOIS												
Coon Cr	Burlington	12 12 73	41	9	91	36		3,267	1	23M		36
Macoupin Cr	Farmersville	9 27 73	21	65	35	15		4,027	1	3M	2	
Impndmt Chouteau	Granite City	5 04 73	32	20	80	67		406	2	12A	2	
Spring Cr-Kank R	Kankakee	3 10 73	44	7	93	1		34,963	2	4M	1	
N Martinton Dtch	Martinton	8 22 73	12	41	59	23		8,312	1	3M	1	
Trib Sugar Cr	Milford	8 23 73	13	1	99	2		88,348	3	9M	2	
Otter Cr	Otterville	10 03 73	13	8	92	5		4,544	2	2M	4	
Panther Cr	Roanoke	8 26 73	13	10	90	7		6,664	2	3M	4	
Exline	St George	8 29 73	12	10	90	4		14,355	2	2M	1	
Asa Cr	Sullivan	10 25 73	12	72	28	3		47,069	2	3M		12
Mid Fk Big Muddy	West Frankfort	10 23 73	21	62	38	27		5,156	1	3M	7	
INDIANA												
White Lick Cr	Brownsburg	7 15 73	31						4	2M	4	
Bower Cr	Colfax	6 28 73	42	5	95			7,844				
Snail Cr	Fountaintown	9 28 73	13		100			290	2	1M		
Lt Indian Cr	Lawrence	4 29 73	12	2	98			300	1	4M		
Salt Cr	Nashville	9 20 73	31	8	92			4,272	2			
Polywog Cr	New Lancaster	10 01 73	22		100			100	3	1M		
Lt Graham Cr	New Marion	6 03 73	13	60	40			5,000	2	15M		
Studebark Ditch	Shideler	9 19 73	13		100			280	3	1M		
Big Walnut Cr	Upland	9 30 73	13	20	80			800	2	2M	2	
Walnut Cr	Warsaw	7 20 73	26		100			25	4			
IOWA												
Mud Cr	Alvord	10 01 73	50	10	90				3			
Staff Cr	Chester	7 05 73	13	40	60			6,000	1	4M		
Mississippi R	Dubuque	8 31 73	31	10	90			30,000	1	2M		12
Maus Park Pd	Dubuque	5 09 73	31	10	90			150	4	10A		6
KANSAS												
Neosho R	Chanute	8 10 73	44	5	95	25		2,000	4	2M	1	
Santa Fe Lake	Chanute	7 04 73	41	37	63	20		118,000	1	54A		60
Neosho R	Chanute	12 11 73	42	2	98	5		100	4	1M	1	
Old Sinclair Pd	Thrall	4 26 73	44	100		100		100	4	10A	3	
Arkansas R	Wichita	7 17 73	50	10	90	30			2	1M		15

See footnotes at end of table.

TABLE 10—Report of Fish Kills, 1973—Cause Identified—Continued

Body of water	City or town	Date	Cause[1] see code page 25	Type of fish killed: Percent game	Type of fish killed: Percent non-game	Percent kill with commercial value	Estimated fish killed	Severity[2] see code page 25	Estimated miles or acres affected[3] page 25	Duration: Days	Duration: Hrs.
KENTUCKY											
Cox Cr	Bardstown	10 02 73	13	50	50		10,748	2	3M	2	
Long Lake Cr	Clermont	9 07 73	50	60	40	1	1,371	2	2M	1	
Fleming Cr	Flemingsburg	9 08 73	31	4	96		1,014	1	1M	2	
Sinking Cr	Somerset	8 10 73	25		100		5,232	2	3M	1	
St Asaph Cr	Stanford	9 14 73	31	10	90		10,405	2	2M	2	
Dry Fork	Webbville	6 15 73	13	25	75		18	3	1M	1	
LOUISIANA											
Bayou Manchac	Baton Rouge	2 26 73	42	50	50	60	7,500	3	2M		
Monte Santo Bayu	Baton Rouge	2 13 73	25		100		1,000	4	1M		12
Catfish Bayou	Bayou Sorrel	8 22 73	43	25	75	25	12,500	1	5M		24
Panama Canal	Burnside	8 21 73	11	25	75	2	1,500	1	5M		
Long Lake	Columbia	8 23 73	11	18	82		341,000	2	240A	2	
New River	Geismar	9 10 73	24	25	75	10	30,000	2	20M	4	
New R	Geismar	4 23 73	44	75	25	5	8,500	1	18M	12	
New R	Geismar	3 29 73	24	25	75		7,500	4	9M		
New River	Gonzales	3 02 73	25	75	25		3,500	4	10M	3	
Caney Cr	Leesville	1 14 73	25	90	10			4	1A	1	
Bayou Desiard	Monroe	8 04 73	11	90	10		8,897	3	1M	2	
Bayou Breaux	St. Gabriel	6 15 73	44	50	50	5	7,500	1	6M	1	
Cross Bayou	Shreveport	3 29 73	32	1	99		50	4	1M	1	
Sec 5 T17N R3E	West Monroe	4 03 73	31	20	80		1,000	4	1A		12
Toney Bayou	West Monroe	6 04 73	23	90	10		2,000	3	1A		
White Castle Ca	White Castle	8 21 73	11	10	90		300	3	1M		
MAINE											
Kennebec River	Augusta	7 30 73	31	99	1		50	2	1M	60	
N Br Whitney Br	Bridgewater	8 13 73	11	100			850	1	1M		
Dead Stream	Monticello	8 09 73	11	100				2	2M		
Unnamed Brook	Presque Isle	6 30 73	11	90	10		500	1	1M	1	
Youngs Brook	Westfield	8 28 73	11	100			1,000	2	2M	2	
MARYLAND											
Bynum Run	Bel Air	12 — 73	42		100		25,850	3	2M	2	
Unnamed Pond	Crofton	11 12 73	50	95	5		2,000	2	2A	10	
Stream-Gunpowder	Joppatowne	8 16 73	28		100		4,000	2	1M	2	
Stoney Cr	Severna Park	9 07 73	28	50	50	10	3,000	3	2A		3
Bear Cr	Sparrows Point	7 04 73	26	1	99	99	125,000	3	228A	1	
Old Road Bay	Sparrows Point	3 30 73	26		100	100	30,000	3	6A	3	
Jones Cr	Sparrows Point	4 19 73	26	93	7	86	31,727	3	15A	1	
Bear Cr	Sparrows Point	5 17 73	26	1	99	99	45,838	3	40A		12
MASSACHUSETTS											
Norton Reservoir	Norton	2 01 73	50		100		40	4	1A	1	
MICHIGAN											
Bean Cr	Addison	9 03 73	50				20,000	1			
Clam R	Cadillac	5 30 73	31	100			200	3	1M	3	
Maple R	Ovid	9 03 73	42				9,048	1	17M		
MISSISSIPPI											
Bay of St Louis	Bay St Louis	7 26 73	31	10	90		5,000	2	10A	1	
Pearl R	Byram	5 18 73	31	10	90		1,800	3	30M	2	
Luxapalila R	Columbus	10 02 73	31	40	60		3,500	2	4M	1	
Tallabouge Cr	Forrest	4 17 73	28	100			100	4	5M	1	
Tombigbee R	Fulton	8 14 73	11	50	50		8,000	1	8M	3	
Mississippi R	Natchez	4 12 73	23		100		3,000	3	1M		
Hennesseys Bayou	Vicksburg	5 04 73	31	20	80		250,000	3	1280A	5	
Otuckalofa Cr	Water Valley	10 01 73	11	50	50		2,500	3	6M		8
MISSOURI											
E Fk S Grand R	Belton	8 09 73	31				110	4	1M	1	
Vest Pond	Buffalo	3 23 73	42	100			950	2	1A	1	
Beeler Cr	Cabool	5 25 73	24	8	92		1,434	4	5M		
Chance Pond	Centralia	7 20 73	11	100			300	4	6A	1	
Goodwater Cr	Centralia	6 28 73	26				100	4	4M		
Cedar Cr	Columbia	8 15 73	21	17	83		39,409	1	13M	6	
Hudson Pond	Dunnegan	7 30 73	11	80	20		75	4	1A		
Walker Lake	El Dorado Spgs	3 25 73	24	100			4,160	1	10A	1	
Yarnell Cr	Fenton	8 28 73	31				50	4	2M	1	
Big Cr	Glover	8 — 73	26					2	8M		
Ditch #6	Hayti	8 13 73	11	84	16		6,420	2	4M		
E Fk Chariton R	Huntsville	9 03 73	21					3	8M		
Stouts Cr	Ironton	9 04 73	31					3	1M		
N Fk Salt R	Kirksville	6 29 73	31	5	95		3,000	2	8M	2	
Steer Cr	Kirksville	10 27 73	31				90	4	1M		
Willard Pond	Lebanon	7 25 73	24	100			5,000	1	2A	1	
Noix Cr Slough	Louisiana	10 06 73	25		100		20	1	1A		
Harwood Pond	Maysville	5 26 73	12	100			4,485	1	3A	1	
Montrose Lake	Montrose	4 20 73	35	81	19		1,350	3			
Belleau Cr	Ofallon	8 28 73	31	100			100	4	2M		
Pond Cr	Republic	8 15 73	11				400	2	1M		2
North Dry Sac Cr	Sacville	1 26 73	42	5	95		2,852	3	3M		2
Mattese Cr	St Louis	11 02 73	21		100		1,000	2	1M	1	
Gravois Cr	St Louis	9 05 73	31					3	1M		
McKinley La	Unionville	7 17 73	12	100			300	4	15A		
Woehr Pond	Wardsville	7 05 73	13	100			1,408	1	1A	1	
Postoak Cr	Warrensburg	8 09 73	31	23	77		42,925		5M	2	
MONTANA											
Blacktail Cr	Butte	7 14 73	34	100			100	2	1M		2
Blacktail Deer C	Dillon	7 11 73	11	25	75		3,000	1	3M		3
Jocko R Irrig Ca	Ravalli	7 03 73	11	86	14		700	1	6M		9

NEBRASKA												
G Heidemann Pd	Alexandria	3 06 73	13	100				350	2	2A	3	
Spring Cr	Deshler	5 27 73	31	31	69			17 332	1	8M	1	
Spring Cr	Deshler	5 27 73	31	31	69			17 332	1	8M	1	
Unnamed Ditch	Fremont	4 01 73	22	53	47			12 650	1	2M	2	
Mill Cr	Louisville	3 02 73	13	98	2			18 267	2	3M		10
Cedar Cr	Manley	1 18 73	13		100			5 000	2	3M	2	
NEVADA												
Carson R	Minden	8 11 73	31		100				2	1M	2	
E Fk Owyhee R	Mountain City	7 11 73	21	100	100				1	5M		12
NEW HAMPSHIRE												
Cocheco R	Gonic	7 23 73	27		100			200	2	2M	2	
Nashua R	Hollis	8 — 73	24		100				2	2M	2	
Piscataquog	New Boston	8 21 73	11	67	33			100	2	2M	2	
Ashuelot R	Swanzey	8 29 73	24		100			50	4	1M	2	
NEW JERSEY												
Pequannock R	Butler	9 06 73	21	50	50			1 000	1	2M	2	
Cooper R	Cherry Hill	7 29 73	22	10	90			150	1	1M	2	
Rahway R	Cranford	8 17 73	42	10	90			10 000	2	4M	3	
Goose Cr	Dover Twp	7 27 73	50		100			300	4	1M	3	
Cedar Creek	E Rutherford	1 04 73	42		100			300	3	2M	2	
Millstone R	East Windsor	10 16 73	42	25	75			1 200	3	2M	2	
Private Pond	Elwood	9 06 73	31		100			30	2	7A	2	
Trout Brook	Hackettstown	1 08 73	50	100				35	4	1M	1	
Roebling Mem Pk	Hamilton Twp	8 11 73	50	20	80			1 000	3	5A	1	
Linkos Farm Pd	Hamilton Twp	3 23 73	50		100			200	2			
Cooper R	Kirkwood	10 20 73	31		100			1 300	3	3M		36
Oyster Cr	Lacey Twp	8 09 73	35			100		5 000	4	1M	1	
Oyster Cr	Lacey Twp	2 21 73	35			100		112 000	2	1M	1	
Oyster Cr	Lacey Twp	2 18 73	35									
Oyster Cr	Lacey Twp	2 16 73	35			100		450	4	1M	1	
Prostak Pond	Lebanon	6 16 73	31		100			100	3	1A		8
Kingsland Cr	Lyndhurst	6 21 73	24		100			5 000	3	1M	1	
Bound Brook	Middlesex	10 04 73	32	15	85			100	3	2M	2	
Bedens Brook	Montgomery Twp	4 30 73	24		100			50	3	2M	1	
Nichols Pond	Nutley	9 28 73	24		100			500	1	10A	1	
Harrys Brook	Princeton	1 25 73	42		100			100	4	1M	1	
Shongum Lake	Randolph Twp	6 08 73	50	40	60			100	4	12A	2	
Black R	Randolph Twp	2 02 73	42	50	50			100	4	1M	3	
Ross Brook	Somerville	4 16 73	42		100			300	2	2M		36
Daleys Pond	South River	8 26 73	50		100			500	2	5A	2	
Oyster Cr	Waretown	1 10 73	35			100		1 230 000	1		2	
Stony Brook	Washington Twp	9 05 73	50	100				100	2	1M	1	
Green Brook	Watchung	5 26 73	25	50	50			400	3	2M	1	
Bee Meadows Pd	Whippany	8 20 73	34	100				200	3	10A	1	
NEW YORK												
Canajoharie Cr	Canajoharie	7 25 73	22	2	98			1 000	2	1M		2
Sucker Brook	Canandaigua	8 02 73	22		100			2 700	1	2M	2	
Kaaterskill Cr	Catskill	8 12 73	11	5	95			5 000	2	2M	1	
Tribs-Yawger Cr	Cayuga	5 28 73	41		100			8 000	2	3M	2	
Brockport Cr	Clarkson-Parma	7 01 73	24		100			500	4	4M	1	
Trout Brook La	Cold Spring	6 02 73	33	5	95			50	3	4A	1	
Deer R	Copenhagen	7 27 73	22		100			1 000	2			
Guestward Ho Pd	Deposit	6 09 73	11	5	95			1 000	2	20A	1	
Cattaraugus Cr	Five Corners	10 04 73	13		100			200	2	1M	1	
Wallkill R	Goshen	4 17 73	32	5	95			2 000	2	6M	1	
Greenwood La	Greenwood Lake	3 13 73	28	1	99			250	4	1A	2	
Neil Cr	Haskinsville	7 31 73	42	5	95			4 000	1	1M	2	
Chadakoin R	Jamestown	5 02 73	26		100			25	2	3M		2
English Brook	Lake George	8 06 73	33	95	5			2 000	2	1M		2
Little Inlet	Mayville	7 23 73	22	5	95			200	1	1M	1	
Cherry Valley Cr	Middlefield	9 15 73	13	1	99			5 000	2	4M	3	
Eighteenmile Cr	Newfane	8 17 73	31	1	99			1 000	2	8M	1	
Cayuga Cr	Niagara Falls	4 18 73	24	1	99			300	1	1M	1	
Idleport Cr-Trib	Oakfield	8 25 73	22	1	99			10 000	2	6M	2	
Sunny Brook	Ramapo	7 08 73	11		100			3 000	2	1M	1	
Genesee R	Rochester	7 30 73	31	1	99			1 000	3	2M	1	
Sixmile Cr	Rome	4 26 73	32	25	75			15	4	1M		2
Sub Tr Putnam Br	Sennett	11 29 73	42	1	99			1 500	1	1M	10	
Skaneateles Cr	Skaneateles	10 17 73	26	1	99			2 000	2	4M	2	
T-1 Lt Beards Cr	Wadsworth	6 18 73	12		100			500	4	2M	1	
Mill Cr & Tribs	Webster	5 09 73	28		100			500	2	3M	1	
Mill Cr & Tribs	Webster	5 26 73	28		100			2 000	1	1M		12
Shrub Oak Brook	Yorktown	9 04 73	31	2	98			300	2	1M	6	
NORTH CAROLINA												
Lake Julian	Asheville	6 22 73	50		100			400	4	20A	2	
Trib Roanoke R	Eden	5 16 73	31		100			140	3	1M	1	
Moir Branch	Eden	5 13 73	31		100			140	3	12A	3	
Eno R	Hillsboro	10 28 73	31	3	97			412	4	2M		
Beaverdam Cr	Newton Grove	12 07 73	13	50	50			75		4M		
Trout Hatchery	Roaring Gap	5 01 73	50	100				2 000	2			12
Hyco Lake	Roxboro	7 17 73	50	65	35			7 000	2	50A	3	
Rocky R	Siler City	10 19 73	31	53	47			4 161	2	5M	15	
Lake Rhodhiss	Valdese	3 09 73	50	96	4			361	4	30A	1	
Lake Junaluska	Waynesville	6 23 73	50		100			1 854	4	4A		
NORTH DAKOTA												
Mouse R	Minot	1 15 73	31	40	60				2	100M		
OHIO												
Lost Cr	Allen Co	9 29 73	44					106				
Ottawa R	Allen Co	9 25 73	31					10 539				
Sugar Cr	Allen Co	8 26 73	44					93 187				
Lost Cr	Allen Co	6 07 73	42					836				
Ashtabula R	Ashtabula Co	7 29 73	28					618				
Trib Grand R	Ashtabula Co	9 19 73	13					709				
4 Mile Cr	Athens Co	3 10 73	28					13 507				
Miami-Erie Canal	Auglaize Co	5 02 73	31					4 758				
Owl Cr	Auglaize Co	9 17 73	13					275				

See footnotes at end of table.

TABLE 10—Report of Fish Kills, 1973—Cause Identified—Continued

Body of water	City or town	Date	Cause[1] see code page 25	Type of fish killed: Percent game	Type of fish killed: Percent non-game	Percent kill with commercial value	Estimated fish killed	Severity[2] see code page 25	Estimated miles or acres affected[3] page 25	Duration Days	Duration Hrs.
OHIO—Continued											
Trib Ohio R	Belmont Co	4 19 73	31				4	4			
Captina Cr	Belmont Co	8 19 73	21				511				
Indian Cr	Butler Co	1 01 73	31				1,348				
Lt Darby Cr	Champaign Co	6 03 73	13				200				
Wilson Cr	Clinton Co	8 20 73	26				1,210				
Turkey Run	Clinton Co	7 18 73	13				221				
Dobbins Ditch	Crawford Co	1 26 73	42				2,258				
Sandusky R	Crawford Co	9 24 73	31				1,714				
Lt Scioto R	Crawford Co	9 22 73	13				147				
Olentangy R	Crawford Co	10 08 73	31				3,100				
Lost Cr	Crawford Co	10 15 73	13				3,802				
Tr Chippewa Cr	Cuyahoga Co	11 01 73	28				20				
Ohio Canal	Cuyahoga Co	8 23 73	26				3,500				
N Fk Stillwater	Darke Co	10 11 73	31				1,188				
Prairie Cr	Defiance Co	6 02 73	24				2,184				
Trib Mill Cr	Delaware Co	10 04 73	13				138				
Kabler Run	Delaware Co	7 20 73	28				8,374				
Mills Cr	Erie Co	7 18 73	11				218				
Hunter Run	Fairfield Co	5 21 73	28				27				
Bad Cr	Fulton Co	7 20 73	31				6,206				
Al Cr	Fulton Co	9 08 73	31				1,024				
Al Cr	Fulton Co	8 29 73	31				164				
Al Cr	Fulton Co	8 28 73	28				409				
Sycamore Cr	Hamilton Co	8 28 73	31				150				
Lye Cr	Hancock Co	10 08 73	13				42				
Trib Eagle Cr	Hancock Co	10 08 73	31				821				
Eagle Cr	Hancock Co	9 29 73	13				11,761				
N Br Blanchard R	Hancock Co	2 03 73	44				39,976				
Trib Blanchard R	Hancock Co	3 06 73	44				6	4			
Ottawa Cr	Hancock Co	6 27 73	44				67,226				
Simpson Ditch	Hardin Co	3 22 73	28				3	4			
Grass Run	Hardin Co	9 26 73	31				2,579				
Taylor Cr	Hardin Co	9 06 73	24				11,342				
Taylor Cr	Hardin Co	5 14 73	32				5,396				
Taylor Cr	Hardin Co	10 26 73	24				1	4			
Liming Cr	Harrison Co	10 08 73	31				584				
Oberhaus Cr	Henry Co	8 26 73	50				3	4			
Oberhaus Cr	Henry Co	9 20 73	22				113				
Harpers Run Cr	Hocking Co	8 31 73	25				2,250				
Norwalk Cr	Huron Co	2 24 73	35				3	4			
Schenck Cr	Knox Co	10 10 73	11				35,973				
Lake Erie	Lake Co	10 23 73	35				142				
Rocky R	Lorain	7 22 73	31				150				
Silver Cr	Lucas Co	7 23 73	28				55				
Ten Mile Cr	Lucas Co	7 18 73	25				368,651				
Trib Ottawa R	Lucas Co	2 28 73	50				5				
Ottawa R	Lucas Co	8 09 73	31				2,027				
Island Cr	Mahoning Co	10 26 73	13				197				
Rocky River	Medina Co	7 09 73	31				463				
Gr Miami R	Miami Co	9 06 73	31				121				
Toms Run	Montgomery Co	10 05 73	31				543				
Lily Cr	Montgomery Co	5 14 73	28				12				
Bartlett Run	Muskingum Co	10 08 73	28				300				
E Br Duck Cr	Noble Co	10 01 73	21				2,235				
Buffalo Cr	Noble Co	9 10 73	21				40				
Flat Rock Cr	Paulding Co	10 01 73	31				1,099				
Tr Turkey Run Cr	Perry Co	8 17 73	44				356				
Chenowith Fk	Pike Co	10 04 73	28				952				
Crooked Cr	Pike Co	9 06 73	31				13				
Garrison Br	Preble Co	9 04 73	13				496				
Prices Cr	Preble Co	10 05 73	27				4,932				
Seven Mile Cr	Preble Co	10 04 73	31				20				
Trib Cranberry	Putnam Co	9 11 73	13				1,345				
Jennings Cr	Putnam Co	5 24 73	31				14,324				
Plum Cr	Putnam Co	8 13 73	31				5,372				
Riley Cr	Putnam Co	6 25 73	28				1,947				
Trib Black Fk	Richland Co	8 30 73	31				48				
McMurtrie Ditch	Sandusky Co	8 29 73	31				361				
Lt Muddy Cr	Sandusky Co	7 21 73	11				113				
Lick Run Cr	Scioto Co	5 27 73	13				602				
Wolf Cr	Seneca Co	9 30 73	31				95				
Indian Cr	Seneca Co	5 18 73	35				24				
Tr Nimishellen	Stark Co	4 22 73	50				400				
Tr Tuscarawas R	Stark Co	4 03 73	44				100				
Congress La Outl	Stark Co	7 04 73	31				1,372				
Springfield Lake	Summit Co	8 24 73	28				2,358				
Cuyahoga R	Summit Co	9 06 73	35				365				
Tr Lt Cuyahoga	Summit Co	9 17 73	24				7	4			
Trib Mosquito Cr	Trumbull Co	6 20 73	11				555				
Lt Yankee Cr	Trumbull Co	6 20 73	44				1	4			
Tuscarawas R	Tuscarawas Co	8 02 73	24				1,027				
Rocky Fk Cr	Union Co	10 04 73	13				500				
Lt Auglaize R	Van Wert Co	9 10 73	31				11,794				
Trib Town Cr	Van Wert Co	9 05 73	31				1,884				
Trib St Marys R	Van Wert Co	4 30 73	50				4	4			
Lake Alma	Vinton Co	5 31 73	21				52				
Newman Run	Warren Co	5 07 73	13				278				
Turtle Cr	Warren Co	6 19 73	12				5,833				
Muddy Cr	Warren Co	7 09 73	31				1,299				
Turtle Cr	Warren Co	7 01 73	31				445				
Bear Cr	Washington Co	4 21 73	25				1,900				
Paw Paw Cr	Washington Co	8 12 73	25				3,395				
Leigh Run	Washington Co	8 01 73	25				110				
Trib Duck Cr	Washington Co	7 16 73	44				1,055				
Muddy Fork	Wayne	8 16 73	41				656				

Lt Apple Cr	Wayne Co	8 21 73	25				34			..	..
Trib Miller Cr	Williams Co	6 18 73	26				3,830			..	..
Rocky Ford Cr	Wood Co	5 31 73	23				18			..	..
Grassy Cr	Wood Co	8 29 73	22				4,952			..	..
Johnsons Run	Wood Co	12 07 73	44				5,854			..	..
Dry Cr	Wood Co	5 16 73	28				1,659			..	..
OREGON											
E Fk Millicoma R	Alleganey	7 15 73	28	40	60		600	4	4M	3	..
Private Reservr	Canby	6 24 73	11	90	10		500	2	1A	..	8
Canyon Cr	Canyon City	7 21 73	28	75	25		3,500	2	2M	1	..
Private Pond	Cornelius	8 07 73	11	100				4	1SA	..	..
Wallowa R	Enterprise	5 11 73	13	100			2,000	2		..	..
Alton Baker Pond	Eugene	8 19 73	28	10	90		500		2A	1	..
Lt Deschutes R	Gilchrist	7 11 73	11	72	28		9,520	1	4M	22	..
Three R	Hebo	5 03 73	50	100			1	4		..	..
Private Pond	Hillsboro	7 30 73	12	100			1,100	2	1A	7	..
Johnson Cr	Portland	6 23 73	24	1	99		2,400	2	1M	1	..
McCarthy Cr	Portland	9 20 73	42	95	5		900	2	2M	2	..
PENNSYLVANIA											
Lt Muddy Cr	Adamstown	6 18 73	28	11	89		1,891	4	1M	1	..
Trout Cr	Allentown	8 30 73	24	80	20		57	4	1M	..	5
Bane Cr	Amity	6 12 73	44		100		115	2	5M	1	..
Bachmans Run	Annville	7 18 73	13	27	73		6,850	2	4M	..	4
Trib-Chartiers C	Arden	3 23 73	21		100		50	3	2M	..	..
Beaver Cr	Beaver Springs	8 31 73	31	25	75		660	2	1M	..	4
Pigeon Cr	Bentleyville	5 30 73	21	52	48		250	2	5M	2	..
Snyder Run	Bloomsburg	11 06 73	28	1	99		4,911	1	2M	1	12
Bear Cr	Bruin	8 31 73	24	58	42		27,004			..	..
Muddy Cr	Carmichaels	10 04 73	21	54	46		225	3	2M	1	..
Harveys Run	Castanea	6 27 73	50	23	77		125	1	1M	..	5
Drakes Cr	Chase	8 06 73	42	1	99		500	1	2M	1	..
Whites Run	Connellsville	10 26 73	33		100		150	2	1M	2	..
S Br French Cr	Corry	6 08 73	25	15	85		1,200	3	8M	2	..
Bucklick Run	Mead Twp	11 17 73	25	100			4	4	3M	..	..
Trib To Pine Cr	Higins	10 18 73	13	1	99		2,009	1	2M	10	..
Elm Brook	East Benton	9 14 73	42	24	76		6,000	2	1M	2	..
Trib-Valley Cr	E Whiteland Twp	4 30 73	11	34	66		1,500	1	1M	..	24
Camp Brook	Elkland	11 09 73	28	12	88		77,324	2	12M	..	..
Breakneck Cr	Evans City	8 29 73	13	19	81		28,000	1	3M	2	..
Willow Cr	Fleetwood	10 16 73	31	18	82		1,334	4	3M	4	..
Spring Cr	Hershey	4 23 73	28	50	50		200	3	2M	2	..
Frankstown Br	Hollidaysburg	7 22 73	23	75	25		500	3	2M	2	..
Oak Run	Hughesville	1 26 73	50		100		800	4	1M	..	1
Wolf Run	Hughesville	1 19 73	25		100		100	4	..	1	..
Trib-Martins Run	James City	1 17 73	44	100			12	1	1M	2	..
Lt Fishing Cr	Jerseytown	8 23 73	44	8	92		51,595	2	6M	4	..
Muddy Cr	Khedive	6 18 73	42	100			1,500	3	3M	2	..
Lewis Run	Lafayete Twp	4 12 73	44	100			40	4	10M	..	..
Chartiers Cr	Lawrence	12 19 73	24	29	71		550	3	1M	2	..
Tyler Run	Leaders Heights	1 18 73	42	24	76		1,200	1	2M	4	..
Buffalo Cr	Lewisburg	8 14 73	27	20	80		10,536	2	2M	..	24
Hurst Run	Lycippus	4 20 73	42		100		2,400	1	2M	..	1
Brush Run	McMurray	10 10 73	21	40	60		2,085	2	3M	1	..
Jacks Cr	Maitland	9 02 73	24	20	80		125	4	2M	1	..
Trib-Mauses Run	Mausdale	9 20 73	50		100		50	4	1M	1	..
Mingo Cr	Monongahela	9 22 73	21	19	81		160	3	1M	2	..
Bow Cr	Mountain Top	4 25 73	50	100				2	1M	..	..
Trib-Pequea Cr	Narvon	3 29 73	22	100			489	3	1M	1	..
Lt Buffalo Pk La	Newport	6 15 73	24	100			85	4	1M	..	2
Perkiomen Cr	Palm	8 31 73	24	34	66		1,725	3	1M	2	..
Mahoning Cr	Punxsutawney	7 10 73	50	7	93		2,686	3	1M	1	..
Lackawanna R	Scranton	7 23 73	24	19	81		1,000	2	1M	..	5
Unnamed Run	Slippery Rock	8 28 73	31	2	98		3,108	2	1M	1	..
Carr Run	Springboro	6 22 73	13	42	58		180	3	1M	2	..
Crum Cr	Springfield	6 04 73	28	14	86		7,913	1	4M	1	..
Bushkill Cr	Stockertown	9 24 73	28	9	91		3,969	3	1M	1	..
Mill Cr	Stouchsburg	11 12 73	44		100		200	4	1M	6	..
Lt Northkill Cr	Strausstown	11 17 73	50	10	90		2,560	2	4M	3	..
White Oak	Towamencin Twp	10 03 73	44	69	31		2,669	1	2M	5	..
Huntsville Cr	Trucksville	11 12 73	33	100			200	2	1M	2	..
S Br Glade Run	Valencia	8 14 73	26	9	91		2,975	2		..	..
Breakneck Cr	Valencia	6 23 73	25	73	27		10,000	1	11M	3	..
Allegheny R	Warren Boro	5 22 73	24		100		500		1M	..	4
Charleston Cr	Wellsboro	7 06 73	28	4	96		1,550	2	1M	..	8
Cowanesque R	Westfield	11 17 73	28	3	97		23,190	2	3M	..	12
Trib-Chester Cr	Westtown Twp	6 26 73	28	46	54		2,743	2	1M	..	24
Lt Broad Run	W Whiteland Twp	4 20 73	31	100			76	3	1M	..	24
SOUTH CAROLINA											
Cane Cr	Lancaster	10 10 73	24	10	90		5,000	2	1M	..	..
Catfish Canal	Marion	11 13 73	31	5	95		10,000	2	33M	14	..
Catawba R	Rock Hill	9 15 73	24	9	91		192,298	2	4M	..	5
Catawba R	Rock Hill	9 15 73	24	9	91			2	4M	..	5
SOUTH DAKOTA											
James R	Huron	6 29 73	31	1	99		1,725	2	1M	3	..
Madison Lake	Madison	7 20 73	31	80	20		600	4	2799A	1	..
TENNESSEE											
Booker Cr	Bluff City	2 15 73	42	21	79		1,980	3	4M	1	..
Beaver Cr	Bristol	5 18 73	24	20	80		563	3	4M	1	..
Boiling Fork Cr	Cowan	2 23 73	25	20	80		5,080	3	9M	3	..
Richland Cr	Dayton	3 10 73	31	40	60		6,997	2	1M	..	12
Huckleberry Cr	Flintville	10 09 73	11	45	55		9,641	3	2M	4	..
8third Cr	Knoxville	8 28 73	31		100		226	4	1M	1	..
8third Cr	Knoxville	8 23 73	31		100		422	4	1M	1	..
Loosahatchie R	Memphis	6 14 73	24	20	80		133,889	2	7M	1	..
Wolf R	Memphis	4 05 73	31	10	90		12,000	2		1	..
Loosahatchie R	Memphis	4 10 73	24	1	99		1,500	3	1M	1	..
Lt Chucky Cr	Mosheim	3 29 73	42	30	70		614	3	2M	2	..
Roan Cr	Mountain City	8 08 73	50	1	99		11,160	2	2M	..	12
Stones R	Murfreesboro	9 10 73	31	65	35		32,483		1M	3	..
Stones R	Murfreesboro	10 16 73	31	10	90		300	4	1M	1	..

See footnotes at end of table.

TABLE 10—Report of Fish Kills, 1973—Cause Identified—Continued

Body of water	City or town	Date	Cause[1] see code page 25	Type of fish killed: Percent game	Type of fish killed: Percent non-game	Percent kill with commercial value	Estimated fish killed	Severity[2] see code page 25	Estimated miles or acres affected[3] page 25	Duration: Days	Duration: Hrs.
TENNESSEE—Continued											
Richland Cr	Nashville	9 06 73	28	10	90		10,585	2	1M		12
Lt Wolftourg Cr	Ooltewah	8 19 73	13	9	91		15,932	2	2M	1	
Richland Cr	Pulaski	9 14 73	22	12	88		20,584	2	7M	2	
Wolf R	Rossville	7 17 73	22	50	50		101	4	2M		12
Clear Fork Cr	Sulphur Springs	9 08 73	28	10	90		379	4	1M	2	
Rock Cr	Tullahoma	7 19 73	31	2	98		828	3	2M	2	
TEXAS											
Halls Bayou	Alvin	6 11 73	11	33	67		1,000	3	1M	3	
East Mustang Cr	Alvin	6 06 73	11	30	70		1,000	2	5M		
Oyster Bayou	Anahuac	7 06 73	11	26	74	2	25,000	2	5M	3	18
Goose Cr	Anahuac	7 — 73	31				200	4			
Colorado R	Austin	10 — 73	31				71,000	2	5M		
Peyton Cr	Bay City	6 — 73	11					2			
Jones Cr	Brazoria	11 11 73	11	90	10	15	200,000	1	4M	2	
Nolands R	Cleburne	7 04 73	44	83	17		862	3	4M		
Home Cr	Coleman	9 06 73	11	53	47		1,083	1	1M	2	
Colorado R	Colorado City	7 14 73	44	10	90		1,200	1	2M	7	
Lt Sulphur Cr	Colorado City	5 — 73	25								
Austin Bayou	Danbury	6 02 73	11	39	61		2,000	3	7M	3	
Angelina R	Diboll	9 06 73	31	30	70		1,350	3	14M	4	
Dickinson Bayou	Dickinson	12 — 73	31				100	4	1M		
Indian Cr	Ft Worth	6 — 73	11				200	4	1M		
Cedar Lakes	Freeport	8 — 73	25				110,000	2	20A		
San Bernard R	Freeport	8 — 73	11				700,000	2	4M		
Galveston Bay	Galveston	7 — 73	50				2,500	4	4A		
Lake Granbury	Granbury	6 22 73	11	100			1,000	3	2M	3	
Palo Duro Cr	Hansford	3 — 73	13				1,000	1	4M		
Frio Cr	Hereford	12 — 73	13				1,000	3			
Clear Cr	Houston	11 — 73	24				9,000	3	8M		
E Fk Trinity R	Lavon	3 — 73	50				1,000	3	1A		
Chocolate Bayou	Liverpool	6 09 73	11	20	80		5,000	2	1M	3	
Grace Cr	Longview	2 — 73	31				1,000	4	2M		
Lavaca R	Moulton	2 — 73	26				100	4	2M		
Egg Nog Br	Nacogdoches	5 — 73	24				100	4	1M		
Grassbeck Cr	Quanah	8 — 73	11				1,000	2	2M		
Concho R	San Angelo	8 — 73	31				2,500	3	2M		
Concho R	San Angelo	8 13 73	31	80	20		2,500	4	3M	1	8
San Antonio R	San Antonio	1 — 73	31				1,000	3	2M		
Galveston Bay	Seabrook	2 — 73	50								
Galveston Bay	Seabrook	11 02 73	31	1	99	99	100,000	3	10A	2	
Galveston Bay	Seabrook	11 19 73	31		100	100	300,000	2	20A	2	
Oyster Cr	Sugarland	5 17 73	11	53	47	23	22,000	2	7M	3	
Oyster Cr	Sugarland	2 — 73	22				5,000	2	1M		
Oyster Cr	Sugarland	5 — 73	11				3,000	3	4M		
Sweetwater Cr	Sweetwater	3 — 73	13				500	3			
Sweetwater Cr	Sweetwater	3 13 73	13	20	20		500	2	5M		18
Buffalo Lake	Umbarger	6 — 73	13				1,000	3			
Elm Bayou	Winnie	6 08 73	11	28	72	9	30,000	2	8M	3	
Hackberry Gully	Winnie	7 23 73	11	20	80		3,000	2	2M	3	
East Bay Bayou	Winnie	7 09 73	11	30	70		50	3			
Elm Bayou	Winnie	7 09 73	11	30	70		50	4	2M	1	
UTAH											
Spring Cr	Springville	2 17 73	50	7	93		180	1	2M	1	
VERMONT											
Furnace Brook	Bennington	8 14 73	28	5	95		350	3	1M		
Mud Cr	Newport Center	6 98 73	13		100		3,000	2	6M		
VIRGINIA											
James R	Big Island	9 09 73	23	40	60		951	3	3M	2	
Beaver Cr	Bristol	5 17 73	31	25	75		9,611	1	9M		18
Turnip Cr	Brookneal	7 08 73	44	25	75		5,000	2	2M	5	
Clinch R	Carbo	9 09 73	35	5	95		5,000	3	10M	1	
Crab Cr	Christiansburg	6 29 73	11	5	95		21,973	2	6M	1	
Jackson R	Covington	9 04 73	28	30	70		15,000	2	17M	1	
Winningham Cr	Crewe	12 09 73	25		100		42	3	1M	2	
Shenandoah R	Front Royal	11 20 72	24	75	25		1,091	3	8M	1	
Trib Cooks Cr	Harrisonburg	10 24 73	25	100			6	2	1M	1	
Naked Cr	Luray	1 07 73	28	10	90		16,865		5M		12
Chenks Hollow	Luray	7 17 73	28	5	95		5,000	2	2M		10
James R	Menchville	5 23 73	31	25		75	7,500,000	2	9M	30	
Lt Stoney Cr	Pembroke	6 22 73	28	20	80		2,500	1	2M	1	
Youngs Pond	Richmond	7 13 73	44		100		80	2	1A		12
Gillie Cr	Richmond	4 19 73	28	25	75		362	2	1M	1	
Plum Cr	Tazewell	5 08 73	42		100		132	4	3M	1	
Lake Pembroke	Virginia Beach	1 31 73	28	10	90		24,386	2	35A	6	
Woods Cr	Williamsburg	9 13 73	44		100		500		1M		12
Bear Cr	Wise	9 13 73	31	15	85		479	2	1M	1	
WASHINGTON											
Corbett Cr	Almira	4 21 73	28	5	95		2,000	3	4M	1	
Padilla Bay	Anacortes	2 05 73	25	100			100	4	3A		
Quilceda Cr	Arlington	4 18 75	50	100			100	4	1M		
Chehalis R	Cosmopolis	4 26 73	23		100		200	4	1M	1	
Chehalis R	Cosmopolis	4 09 73	23		100		100	4	1M	1	
Des Moines Cr	Des Moines	12 03 73	50	75	25		115	1	3M	1	
Second Cr	Enumclaw	2 01 73	13	75	25		100	3	1M	1	
Naches-Union Dit	Gleed	12 11 73	22		100		100	3	1M	1	
Gorst Cr	Gorst	8 06 73	28	15	85		6,000	2	1M	1	
Grays Harbor	Hoquiam	10 18 73	23		100		100	4	1M	1	
Mill Cr	Kent	4 12 73	50	95	5		100	3	1M	1	
Forbes Cr	Kirkland	11 29 73	26					2	1M		
Scriber Cr	Lynnwood	4 09 73	42	90	10		4,000	1	1M	1	

Budd Inlet	Olympia	9 14 73	31					3		1	
Snake R.	Pasco	7 24 73	50		100		200	4			
S Fk Palouse R.	Pullman	4 25 73	24		100		600	3	5M	1	
Cedar R.	Renton	6 07 73	31					4			
Unnamed Pond	Richland	5 23 73	12		100			4	1A	1	
E Fk Satsop R.	Satsop	8 30 73	50	100				4	1M	1	
Spokane R.	Spokane	8 08 73	26	2	98		101,500	2	2M	1	
Unnamed Slough	Stanwood	10 26 73	13		100		100	4	1M	1	
Lake Tapps	Sumner	2 23 73	35					4		5	
Poor Farm Cr.	Sumner	10 19 73	13	100			100	4		1	
Coppei Cr.	Waitsburg	5 05 73	12	3	97		65,040	1	4M	1	
Surveyors Cr.	White Swan	5 29 73	42	100			400	2	1M	1	
WEST VIRGINIA											
Whitesok Fk.	Elizabeth	1 25 73	25		100		300	2	1M	1	
Cloat Run	Flatwoods	9 06 73	25	12	88		1,997	2	1M	1	
Chestnt Bottom R.	Glenville	7 12 73	25		100		3,500	2	1M	1	
Steer Cr.	Glenville	5 18 73	25	80	20		200	4	2M	1	
Lt Kanawha R.	Parkersburg	6 21 73	24	5	95		450	3	1M	1	
Brush Cr.	Princeton	6 15 73	31	10	90		13,900	2	4M	3	
Big Run	Romney	8 15 73	31		100		64,980	1	2M	1	
Ravens Rock R.	Romney	8 23 73	50		100		4,970	3	1M	1	
WISCONSIN											
Fond Du Lac R.	Fond Du Lac	5 18 73	26	90	10		1,000	3	1M		4
Cunningham Cr.	Granton	6 02 73	22		100			1	8M	4	
Poplar R.	Owen	6 27 73	31	15	85		100	3	7M		24

CODES

[1] CAUSE:

10 Agricultural Operations
- 11 Pesticides (Herbicides, Insecticides, etc.)
- 12 Fertilizers
- 13 Manure, Silo, Feedlot Drainage, etc.

20 Industrial Operations
- 21 Mining
- 22 Food & Kindred Products
- 23 Paper & Allied Products
- 24 Chemicals
- 25 Petroleum
- 26 Metals
- 27 Combinations
- 28 Other

30 Municipal Operations
- 31 Sewerage System
- 32 Refuse Disposal
- 33 Water System
- 34 Swimming Pool
- 35 Power

40 Transportation Operations
- 41 Rail
- 42 Truck
- 43 Barge or Boat
- 44 Pipe Line

50 Other Operations

[2] SEVERITY:
- 1 Complete
- 2 Heavy
- 3 Moderate
- 4 Light

[3] ESTIMATED MILES OR ACRES AFFECTED
A = Acres
M = Miles

Table 11 lists the 125 individual fish kills with pollution source not specified. Kills from natural causes are not included.

TABLE 11—Report of Fish Kills, 1973—Cause Not Specifically Identified

Body of water	City or town	Date	Type of fish killed		Percent kill with commercial value	Estimated fish killed	Severity[1] see code page 27	Estimated miles or acres affected[2] page 27	Duration	
			Percent game	Percent non-game					Days	Hrs.
ALABAMA										
Alabama R	Autauga Co	8 18 73	80	20	5	1,000	3	1M		
Poor Boy Lake	Baldwin Co	8 23 73	50	50	10	318	4	1M		
McKernan Cr	Colbert Co	8 02 73	10	90	2	1,613	3			
Mulberry Fk	Cullman	9 02 73	33	67	33	9	4	1M		
Lewis Smith Lake	Cullman	10 03 73	100			32	4	500A		
Six Mile Cr	Dallas Co	8 04 73		100		100	4	1M		
Spring Cr	Lawrence Co	9 28 73		100		120		1M		
Spring Cr	Lawrence Co	9 15 73	18	82	69	3,397	3			
Mc Donald Cr	Madison	7 21 73	50	50		4,652	3			
Shell Bayou	Mobile	5 04 73	100			15	4			
Norton Cr	Mobile	10 03 73	77	23		2,423	3			
Mobile Bay	Mobile	4 01 73	2	98	10	1,028	4	1M		
Isaac Cr	Monroe	8 02 73	80	20	12	149	4			
Betty Rye Br	Morgan Co	6 05 73	50	50		73	4	1M		
Bakers Cr	Morgan Co	2 25 73	1	99		1,100	4			
Washington Cr	Perry Co	8 06 73	1	99		255				
CALIFORNIA										
Tale Slough	Clarksburg	4 09 73	10	90		2,500	3	2M		
2047 Canal	Colusa Co	5 19 73		100		250	4	15M	30	
Colusa Drain Ca	Knights Landing	4 27 73		100		1,000	2	35M	2	
Private Pond	Lodi	12 21 73		100		995	2	1A		
Pond	Lodi	12 19 73		100		995	2	1A	3	
Diamond Oaks Pd	Roseville	9 21 73	5	95		1,025	2	1A		24
San Joaquin R	Tracy	4 13 73		100		1,000	2	10M	7	
Bard Drain Canal	Winterhaven	11 06 73		100		2,000	2	1M		
Drain	Woodland	3 12 73		100		250	4	1M		
CONNECTICUT										
Housatonic R	Milford	8 01 73			100	9,000	2	1M	4	
Lake Phipps	Westhaven	7 19 73	95	5		100	4		1	
FLORIDA										
Maule La	Dade Co	2 08 73				95				
Withlocoochee R	Inglis	6 22 73				200	4		5	
Lake Apoka	Killarney	7 -- 73		100			2			
Phosphate Pit	Lakeland	9 15 73	100			500	4	15A	1	
Str-La Bell-Mait	Maitland	6 28 73	100			100	4	1M	6	
Lake Wonderwood	Mayport	12 06 73		100	80	1,000		2A	6	
Lake Kathern	Orlando	6 20 73				300	4		2	
Lake Forrest	Orlando	7 29 73	95	5		6,000	2	5A	5	
GEORGIA										
Ossahatchee Cr	Columbus	7 09 73	67	33		43	3	2M		
Chattahoochee R	Fort Gaines	7 19 73					3	30M	10	
ILLINOIS										
Sangamon R	Decatur	8 12 73	36	64	5	17,670	4	11M		
S Br Kishwaukee	Dekalb	9 07 73	9	91	24	75,684	2	5M	1	8
S Br Kishwaukee	Dekalb	9 21 73	17	83	35	12,351	2	3M	1	
Wildcat Slough	Dewey	10 15 73	12	88	8	7,687	3	3M	1	
Otter La	Girard	5 24 73	14	86	3	23,343	3	800A	10	
S Br Rock Cr	Manteno	9 02 73	3	97	14	1,145	4	1M	1	
Meacham Cr	Medinah	5 05 73	67	33	1	3,306	1	1M	3	
Honey Cr	Pittsfield	10 15 73	2	98	41	4,082	4	4M	1	
Senachwine Cr	Sparland	7 17 73	4	96	7	25,679	2	4M		24
Big Sandy Cr	Varna	9 30 73	12	88	73	6,982	2	3M	1	
INDIANA										
Lt Eagle Cr	Eagletown	5 14 73	10	90	20		3	2M		
Brandywine Cr	Greenfield	9 12 73		100		613	1			
KANSAS										
Crooked Cr	Fowler	8 27 73	100		20	1,500	1	2M	2	
Arkansas R	Great Bend	6 27 73	10	90	35	31,000	3	2M		6
Willow Lake	Wichita	5 11 73	100		50	3,700	2			
MASSACHUSETTS										
Charles R	Charlestown	7 17 73		100	100	20,000	4	2M	14	
Chelsea Cr	Chelsea	8 28 73		100	100	35,000	3	3M	1	
Merrimack R	Newburyport	7 25 73		100	100	350,000	2	13M	14	
MICHIGAN										
Detroit R	Wyandotte	8 29 73	10	90		2,000	4	1M	1	
MISSOURI										
Eagle Park Lake	Columbia	4 17 73	100			140	4	1A		
Blue R Trib	Kansas City	6 25 73				25	2	1M		
Missouri R Slough	Tebbets	10 11 73				5,000	2	3A		
MONTANA										
Ashley Cr	Kalispell	7 13 73		100		450	2	1M	1	
NEW JERSEY										
Como Lake	Belmar	10 20 73	30	70		60,000	2	60A	2	
Dennisville Lake	Dennisville	6 01 73	20	80		1,000	3	5A	1	
Beaver Brook	Denville	7 03 73	70	30		50	4	1M		8
Raritan R	Edison	7 11 73			100	200	4	1M		2
Alloways Cr	Hancocks Bridge	6 24 73		100		3,000	3	1M	1	
Petrick Pond	Harmony Twp	7 12 73	100			100	1	3A	3	
Barnegat Bay	Harvey Cedars	1 07 73			100	543,000	2		3	
Medford Park La	Medford	8 27 73	20	80		600	3	25A	2	
Westlings Pond	Mountain Lakes	5 16 73		100		250	2	5A	1	

Lake Hopatcong	Mt Arlington	6 30 73	90	10		400	4	3A		4
Green Brook	Plainfield	9 28 73		100		500	3	1M	2	
Harrys Brook	Princeton	3 22 73	10	90		200	3	1M		8
Yasunas Farm Pd	Sand Brook	11 26 73	100			20	4			
Millstone R	South Brunswick	11 07 73	30	70		100,000	2	15M	7	
Whites Pond	Waldwick	9 07 73	10	90		900	4	10A	1	
So Br Raritan R	Washington Twp	7 28 73	35	65		300	2	1M	1	
NEW YORK										
Chadakoin R	Jamestown	4 17 73	50	50		50	2	3M		2
NORTH CAROLINA										
Trout Hatchery	Roaring Gap	9 07 73	100			2,000	2			12
OHIO										
Katotawa Cr	Ashland Co	4 23 73				350				
Rock Cr	Ashtabula Co	10 03 73				60				
Auglaize R	Auglaize Co	7 18 73				156				
St Marys R	Auglaize Co	10 04 73				183				
Four Mile Cr	Butler Co	7 29 73				134				
Anderson Fk	Clinton Co	9 25 73				101				
Twin Cr	Darke Co	8 12 73				61				
Olentangy R	Franklin Co	1 18 73				5	4			
E Br Portage R	Hancock Co	7 15 73				16				
Scioto R	Hardin Co	8 29 73				207				
Trib Chagrin R	Lake Co	4 17 73				726				
Ogden Run	Meigs Co	9 21 73				20				
Brush Cr	Miami Co	9 16 73				800				
Trib Wolf Cr	Montgomery Co	9 26 73				53				
Mad R	Montgomery Co	2 07 73				104				
Gr Miami R	Montgomery Co	7 19 73				81				
Muskingum R	Morgan Co	10 06 73				11	4			
Scherz Ditch	Sandusky Co	8 20 73				790				
Pymatuning Cr	Trumbull Co	7 24 73				17				
Lt Hocking R	Washington Co	3 13 73				5,374				
Lt Tymochtee Cr	Wyandot Co	6 26 73				3	4			
OREGON										
Sycan R	Bly	7 03 73	30	70		500	1	1M	1	
Private Pond	Dundee	5 20 73	100			200	3	5A	2	
PENNSYLVANIA										
Hare Cr	Corry	7 20 73	32	68		950	2	3M	1	
Petters Cr	Large	5 09 73	100			50	4	5M		1
Chartiers Cr	Lawrence	10 18 73	35	65		890	3	4M	1	
Mill Cr	New Holland	6 18 73	66	34		20	4	6M	1	
SOUTH DAKOTA										
Menno Lake	Menno	7 27 73	100			2,000	4	40A	2	
Big Sioux R	Sioux Falls	8 11 73	90	10		5,000	4	1M	1	
TENNESSEE										
Bartons Cr	Lebanon	6 27 73	60	40		1,722		1M	2	
Stones R	Nashville	9 15 73		100		300	4	1M	1	
TEXAS										
Catfish Cr	Anderson	7 — 73				1,000	3			
Gulf of Mexico	Galveston	9 — 73				3,800,000				
Gulf of Mexico	Galveston	3 — 73				1,000,000	3			
Greens Bayou	Houston	10 — 73				500	4			
Drainage Canals	Houston	7 — 73				10,000,000	2			
Taylor Lake	Laporte	8 — 73				6,000,000	2	10A		
Lake Olney	Olney	5 11 73	100			6				
Gulf of Mexico	Orange	10 — 73				500	4			
Drainage Canal	Raymondville	3 — 73				1,000	4	1M		
WASHINGTON										
Mill Cr	Cosmopolis	10 18 73					4	1M		
Hamokane Cr	Ford	6 06 73		100		300	4	10M	1	
Hoquiam R	Hoquiam	7 02 73		100		100	4	1M	1	
Green R	Kanaskat	6 01 73	100			5	4	1M	1	
Butler Cove	Olympia	3 18 73	100			5	4			
Puget Sound	Port Gamble	10 18 73	100			48,800	2		14	
Pacific Ocean	Taholah	9 07 73	25	75		200	4			

CODES

1 SEVERITY:
- 1 Complete
- 2 Heavy
- 3 Moderate
- 4 Light

2 ESTIMATED MILES OR ACRES AFFECTED
- A = Acres
- M = Miles

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